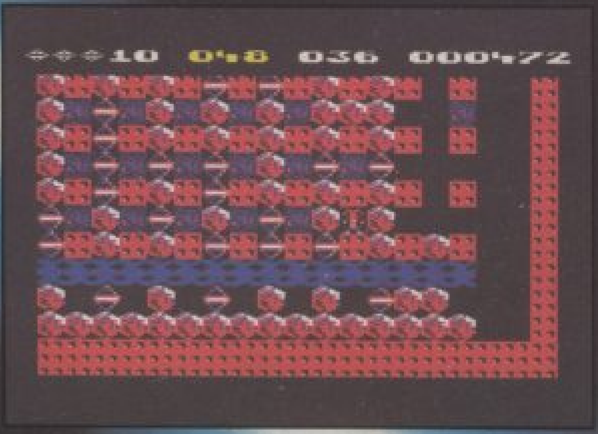
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JUNE 1985



James Bond.



Win Ultimate Games.
See page 41



What is Joan Collins doing in Hot Shots?

REGULARS

Dan on the U.S. Hotline





Cover: Melvin Bagshaw

COMMODORE user

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Shorts

Commodore coach: *Football sponsorship thrives in Britain but no team is, as yet, sponsored by Commodore. Not so in Germany where top Bundesleague club, Bayern Munich, trots on to the field sporting the Commodore logo. Not only that, their team coach is painted in gaudy Commodore colours. This has proved valuable to Commodore, who commmandeered it to ferry VIPs to and from the recent Hanover Fair. Luckily Bayern had a home match that weekend — they lost to rivals Hamburg.*

Shorts

Serial Connexion: *SMC Supplies, manufacturers of the Commodore Connexion Centronics interface, has now produced an RS-232 version, costing £19.95. This is probably a good move since the only other RS-232 interface for the 64 came from now-defunct Stack. The SMC device comes complete with cable and interfacing software on tape. It should be available from Boots and "good computer stores" according to SMC, who can be contacted on 01-441 1282.*

Shorts

Ultimate for Commodore: *Ultimate's top-selling Spectrum titles are, at long last, to be converted for the 64. Both Sabre Wulfe and Underworlde have been licensed to BT's Firebird Software which invested lots of money to get the rights. Conversion work has now begun but, according to a Firebird spokesman, neither game will be in the shops before September.*

Shorts

Customised MPS-801: *If you wept a few tears into your wallet when you found out your Commodore MPS-801 printer couldn't produce descenders (the tails on letters like 'g' and 'p'), there's good news — from Nova Scotia. Kobetek Systems is marketing a replacement chip that gives you the desired descenders and "a more pleasing overall look" to the print. And it will only cost you £25. More details from Kobetek Systems Limited, 1007 Commercial Street, New Minas, Nova Scotia B4N 3C4.*

WHAT YOUR RIGHT ARM'S FOR

Remember when wristwatches were just two hands and a dial? Then they started peeping and playing annoying tunes. Now you can buy a computer terminal to strap onto your arm.

Seiko has produced the RC-1000, the world's smallest wristwatch/computer terminal, which you can plug into your Commodore 64 via an RS232 connection and accompanying software. It has a two-line, 24-character liquid crystal display and a whole variety of fancy functions.

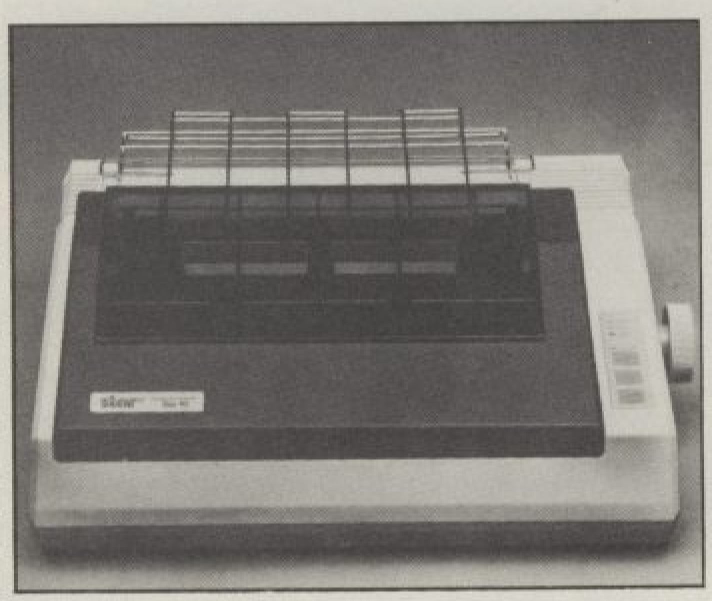
It can be used as an electronic memopad, telephone directory and diary (holding up to 2K), the information being entered from the 64's keyboard. It has a complex alarm mode and facilities for memorising up to 80 date items per year. Oh, and it tells the time.

This mega-sophisticated timepiece doesn't come cheap at around £120 and it should be in the shops by the middle of June. Also planned is a version that uses its own miniature keyboard to input data. What will they think of next?



But how do I strap the 64 on to my right arm?

NEW STAR FOR COMMODORE



Identical in looks to the SG-10, you can plug the SG-10C straight into the serial port on your Commodore micro.

Printer manufacturer, Star, has just announced a Commodore version of its new SG-10 printer, which should be available in Britain round about July. Called the SG-10C, it will cost about the same as the SG-10 (£259) but contains a few less facilities.

Despite that, it does mean you'll be able to plug your Commodore micro straight into the printer without having to fiddle around with an expensive and awkward interface adaptor. More interesting, the SG-10C will print the complete Commodore graphics set and control codes.

It prints bi-directionally at a nippy 120 characters per second, has both tractor and friction feed and works in 80 or 136 column (condensed) mode. You can also expand, reverse or italicise text. Star UK is on 01-840 1800.

128 GETS CP/M TUTORIAL

Commodore has just announced that its new 128 is to get a CP/M tutorial — in the form of a floppy disk. The program is being prepared by Slough-based Microcal, specialists in computer-aided training, who are adapting their existing CP/M tutorial for 8-bit micros.

The news is interesting partly because it demonstrates Commodore's confidence that the 128's CP/M mode will attract lots of buyers. The availability of a CP/M training disk means the initial stages of learning this cumbersome operating system becomes relatively painless. Whether the program will be given away with the 128 or sold separately isn't yet decided.

Microcal is also producing an MS-DOS tutorial for the new IBM-compatible Commodore Personal Computer. Again, they're adapting an existing package for the IBM PC. But according to Microcal boss, John Shearing, there was litle work to do. That's encouraging since the Commodore PC is claimed to be totally IBM compatible.

TYPE IT RIGHT

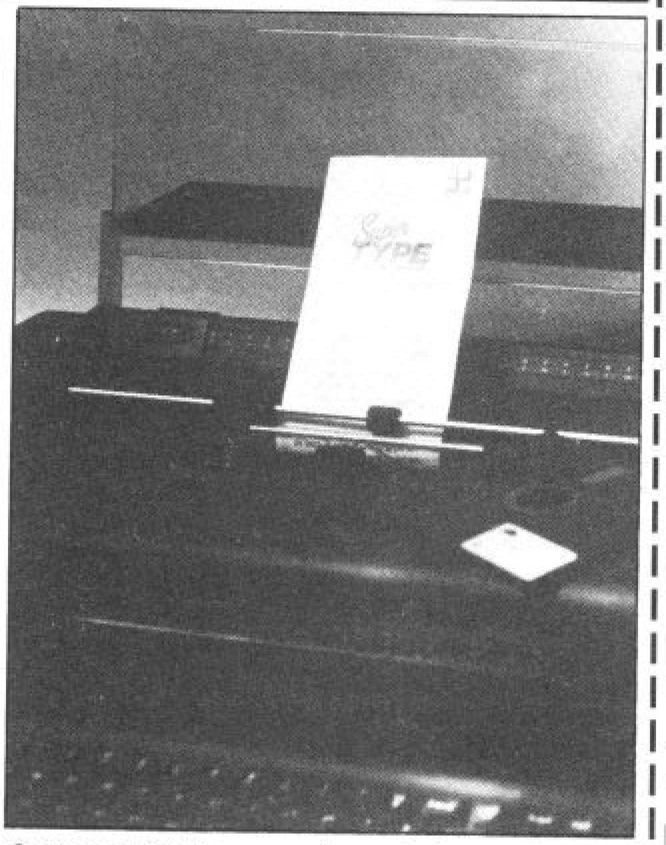
Now that so many Commodore 64s are being used for wordprocessing, whether it's your history essay or a financial report, a program that teaches you how to type properly (with more than two fingers) sounds like a good idea.

Well, the idea's occurred to Precision Software, who've just produced a program called *Supertype*. Costing $19.95 on cassette, the package includes a 50-page stand-up manual.

According to Precision chairman, John Tranmer, "Supertype gives mums and dads and other members of the family a way of making direct and practical use of the home computer". It's also claimed to bring you up to a 50 word per minute standard. And that's no mean feat.

The program uses colours to match the right fingers to the right keys. There's also a 'metronome' sound to help you develop a good typing rhythm. According to the blurb, the program also gives you feedback: each exercise is structured to comment on progress and highlight any areas for improvement.

A business version of the package, on disk ($34.45) will also be available soon for the new Commodore Personal Computer. More details on 01-330 7166.



Supertype will help you reach speeds of up to 50 words per minute



This is a little beastie you definitely won't see in any British shops. Called the Commodore 116, it's really a Commodore 16 with a small Plus/4-style case and 'chiclet' keys rather like the old Spectrum. Apparently the machine was to be marketed only in Germany where it hasn't gone down very well. Yet another black mark for Commodore's marketing strategy.

● Shorts ●

Grandmaster for 16: *Conversions for the Commodore 16 keep on trickling through, slowly but surely. Audiogenic has adapted its Grandmaster chess program, which gained success on both the Vic and 64. All its original features have been retained, including the bargain £8.95 price-tag.*

● Shorts ●

Ariola tombola: *Latest ideas for promoting your wares — from Ariolasoft. The big-spending company has organised a monthly draw (running until December) for a portable SX-64 (which won't run any of their tape games). It also has a voucher scheme for discounts on joysticks, the Currah 64 speech cartridge and the 1541 disk drive. All you have to do is buy their games.*

● Shorts ●

More Screen Shots: *Dorling Kindersley has added two more books to its colourful Screen Shot series for the Commodore 64. Written by Phil Cornes, both volumes deal with 64 graphics and, to quote the blurb, "include a step-by-step guide to programming sprites along with a colour directory of more than 200 sprites". They'll cost you £5.95 each. And you can talk to the publishers on 01-240 5765.*

Erratum: *In last month's Utilities piece we said the maker of Quickdisc was Softsel. The company distributing it is in fact Evesham Micros and they can be contacted on (0386) 49641 at Unit 2, Crown Courtyard, Bridge Street, Evesham, Worcs. Apologies for any inconvenience incurred.*

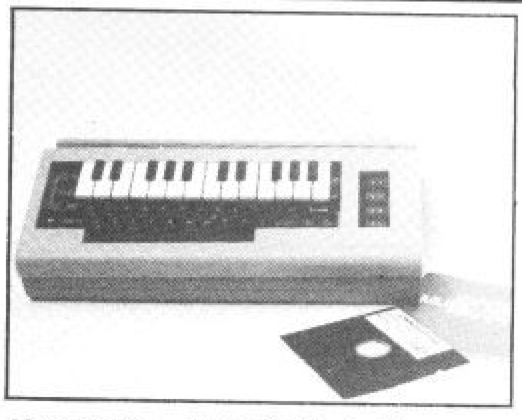
POP GOES MUSIC MAKER

If you're getting bored with just playing your own compositions on Commodore's Music Maker package, you may like to try your hand at some Beethoven, a little Mozart, perhaps Tchaikovsky, Abba or even Rod Stewart.

Commodore has produced a software program, available on tape or disk, for all the aforementioned (plus a few more), each one containing twelve 'tunes' for you to play along with. Costing £9.99 each, you can use them even if you don't own a Music Maker.

You can play in a number of ways. In 'concert mode' you get a graphic accompaniment and the option to play or not. 'Rehearsal mode' lets you learn the melody at your own speed. You can also control the tempo. Lastly 'performance mode', in which you play the complete melody to an accompaniment running in correct time — next step, the Albert Hall.

For those of you with Midi-compatible synthesisers, Commodore claims that each of these packages will allow you to connect to the synth keyboard to get even better sounds. Even Howard Jones had to start somewhere.



Music Maker — a must for the budding Beethoven?

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Gunning for the Big Boys

Commodore at the Hanover Fair



The annual Hanover Industrial Fair makes London's Olympia look like a village hall disco. Despite the Fair's immense size, Commodore still managed to make an impact by showing a whole load of new computers, ranging from the C-128 to the highly sophisticated Commodore 900. Bohdan Buciak battled his way through the crowds to file this report.

A special report by Bohdan Buciak

Nobody could accuse Commodore of being a mere minnow in the hi-tech fishtank. It's now regarded as the biggest seller of home computers in the world. But Commodore doesn't feel that's enough.

With total sales of around five million, the 64 is becoming the Volkswagen Beetle of computing — a world best-seller. But to the hi-tech racing driver, it's just a toy. To make it big you've got to make smarter machines, and grapple with the likes of Apple and IBM.

So Commodore went to the Hanover Fair with not just one, but a series of three new computers, just to prove to a German public that's already sold on Commodore, that the company is on track for greater heights. But there was one omission — no Amiga.

Amiga where are you?

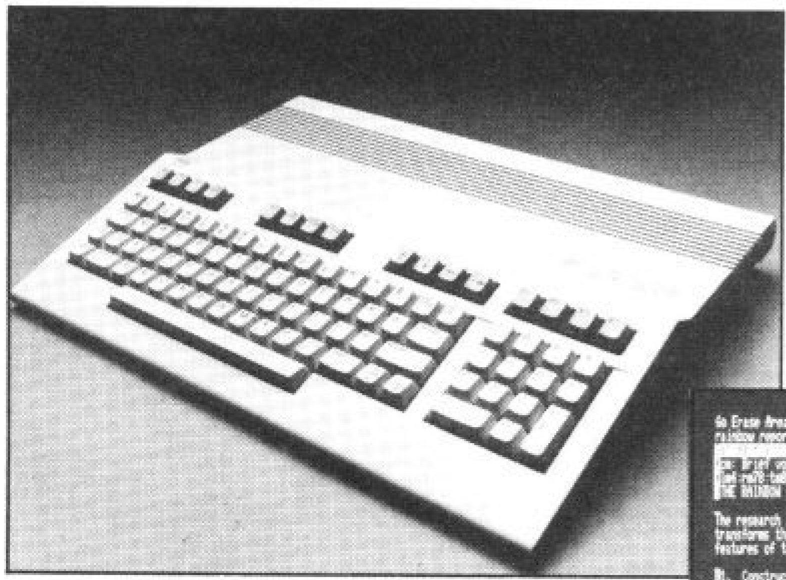
Commodore used to give sneak previews of new developments to the Chosen Few, sometimes disastrously when a machine failed to appear. This time, the Chosen Few had to shrug their shoulders — the mystery machine just wasn't there. Sworn to secrecy, Commodore personnel stiffened at the mere mention of its name.

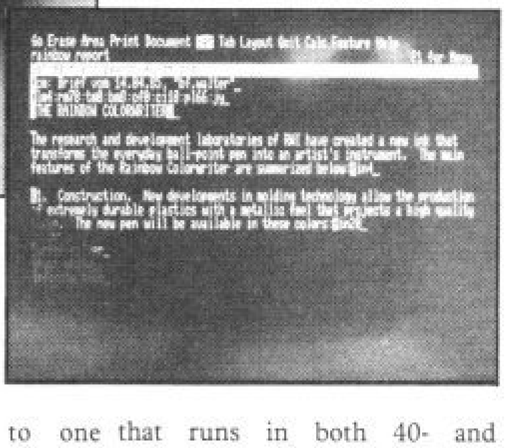
"Everything is on schedule," mumbled a wary Gail Wellington, Commodore's European software boss, as though 'the competition' were crouching under the table. "We're heading for a summer launch in the States and a winter appearance in Britain."

What about price, specification, software? Gail Wellington wasn't playing: "We're only admitting to those marvellous sound and graphics chips and that the operating system is being written by a British firm. We're keeping our mouths shut because we want the singing and dancing to start when the Amiga is launched." But nobody was being tight-lipped about the just-launched 128.

Das Superding Computer

Back at the beseiged Commodore stand, enthusiastic German 'jugend' crowded round the five working C-128 machines on open display for the first time. Above their heads, a sign proclaimed "128 — das superding computer" — whatever that means.





Above: Commodore 128 — star of the show. Right: Superscript running in 80-column mode

Another three superding 128s were being demonstrated by Commodore staff, bombarded by 'technik' questions — the Germans take their computing seriously. Even the boys from Atari (incognito) were spotted, trying to dig up more information to take back to Uncle Jack Tramiel.

Not surprising, with 300,000 64s sold there already, everyone wanted to fathom the 128's upgrade potential. But despite the demos of the 128's assembler/disassembler, 80-column screen, new Basic commands and the bagful of other features, there was little new software to be seen.

No 128 Games

That news will disappoint 64 games players looking for more spectacular software running in 128 mode and using the larger memory. According to one Commodore 'technische' specialist, developing arcade games in 80 columns is not feasible since the new video chip takes too long to update the screen.

On top of that gloom, it looks as though any software that does appear for 128 mode will be on disk. "Personally, I'm not encouraging 128 mode cassette software", asserts Gail Wellington. "If you've got the new mode, you should put it to more sophisticated use."

That seems to make sense — after all, the 128 is supposed to upgrade the 64. If you just want to play games, why buy a 128? Maybe that doesn't bother the Germans who seem to lag behind dismally in superior games software. One of the 64s on display was running a version of Breakout — no US Gold here, not even a Jet Set Wolfgang.

Easier Easyscript

So what 'sophisticated' software has appeared to date? Precision Software had managed to come up with *Superscript*, an 80-column version of Easyscript that runs in both 40- and 80-column mode. According to Tom Cranstoun, Precision's chief programmer, it's crammed with enhancements.

"There's a spelling checker program with a 30,000 word dictionary that you can add to", he enthused. Extensive 'help' menus have been added so that ▶

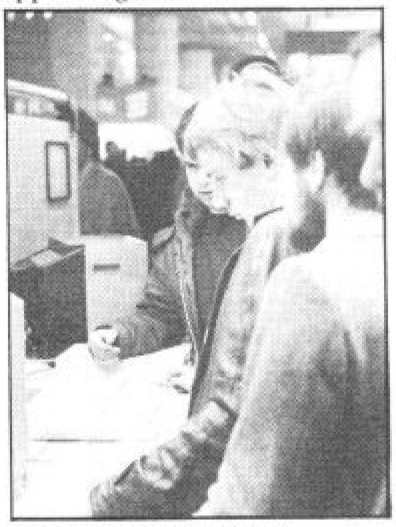
Gunning for the Big Boys

you don't have to keep referring to the manual — a major gripe with the original Easyscript.

You can scroll across 250 columns and the words 'wrap-around' at the end of each line, just like the professional packages. Better still, files are stored sequentially so Superscript will read files you've already created on Easyscript — no upgrade problems here.

But Tom Cranstoun didn't manage to get the new 80-column *Superbase* ready in time. "It will have the same capacity but it will be faster and have more Help menus", he revealed. And if you load up Superscript before Superbase, you can transfer information between the two — in effect, you've got Superoffice.

Apart from those two old-faithfuls, the only other software so far available is Audiogenic's *Swift* spreadsheet and the *Perfect* series (wordprocessor, database, spreadsheet) from Thorn EMI, the only software yet produced to run in the 128's CP/M mode. In short, it was all a little disappointing.



But where is all ze games software, Helmut?

128 RAMdisk

Not so disappointing is the news that a 64K RAMdisk will soon be available for the 128, but it will work only in 128 mode. It amounts to a plug-in cartridge to which you can read and write, as though it were a disk drive. Access and data transfer speeds will be much increased because no mechanical movements are involved.

Although there's no firm information on it yet, you probably won't be able to use the usual 1541 commands. But the 128's Basic does have special RAMdisk commands: STASH, FETCH, SWAP, OFF and SYSTEM — those are pretty self-explanatory for the advanced programmer.

The price is right

Two major questions: who will buy the 128 and what will it cost? Commodore reckons about ten per cent of existing 64 owners in Germany will, not to mention the first-time business user who may be attracted away from other machines.

A recent back-biting Commodore advert in the States suggests that the 128 is "Bad News for Apple and IBM" and compares it with the Apple 11c and the IBM PC jr. The latter is now defunct. One down, one to go — and the knives are out.

And the price? Around £330 was being quoted for the 128, with another £330 for the 1571 disk drive and £350 for the colour monitor. All those compare favourably with Apple and are about the same as a similar Atari 520ST set-up. In Britain, they should be slightly cheaper — Germans seem to have more 'geld' to throw around.

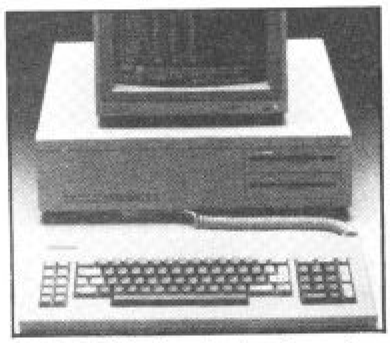
BUSINESS

The Commodore Personal Computer (reviewed this issue) took up a great deal of floor-space and attracted even more attention. If the 128 was firing a salvo at both Apple and Atari, the PC-10 and PC-20 were lining up the ubiquitous IBM PC in their gunsights.

It may not be a state-of-the-art machine (neither is the IBM) but at a price of just under £1,700 for the basic model, it should put Commodore back into the business market, where it's always longed to be. Commodore officials reported that 5,000 PCs have already been sold in Germany, and about the same figure in Britain. But will the sales keep up?

High-flying technology

The other rising star at the Commodore Show was the new



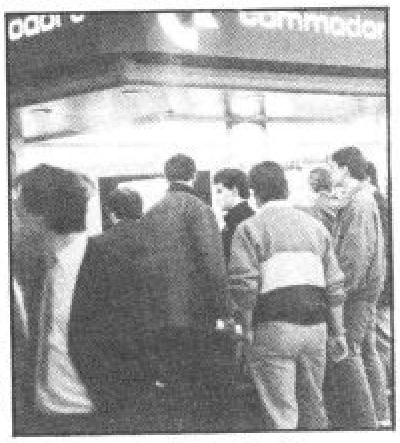
The PC 10 — back to business for Commodore?



The new 900, Commodore's mightiest micro

Commodore 900, described as a multi-user, multi-tasking micro — more about all that later. Still in its development stages, the machine showed enough potential to prove that there's real sophistication here — perhaps the most hi-tech machine Commodore has ever produced. So what is it?

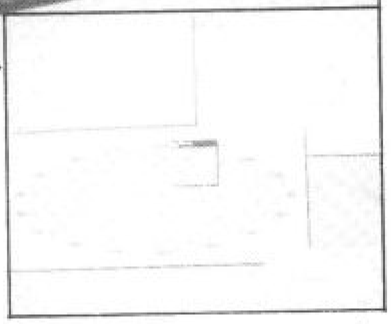
It's a 16-bit micro running the Zilog Z8000 processor. The operating system is called Coherent, a cut-down version of Unix System Five. Why use Coherent instead of the industry-



standard Unix? Because Coherent takes up much less memory, and Commodore didn't have to buy a Unix licence.

Whether Unix or Coherent, it still means that the Commodore 900 can run a number of applications simultaneously (the number partly depends on how many programs you can fit into the standard 512K of RAM). There's also a 20MB hard disk as standard, with options for 40 and 67MB. The multi-user version lets you connect up to seven terminals to share the 900's processing power.

At around £3000 for the basic model, these machines will



Window/graphics software on the 900 — useful for CAD applications

appeal only to specialised uses. One of these should be computer-aided design, since one version of the 900 has an astonishingly high screen resolution of 1024 by 800 pixels. There's also 'windowing' software and a mouse — definitely not for home use.

Conclusions

All the new machines shown at the Hanover Fair will be on display at the Commodore Show in London at the beginning of June. And they'll probably make just as large an impact. With this new range, Commodore is proving that it's not prepared to sit on its laurels and that it's out to conquer not only the home-computer market but business and specialist uses.

There's just one gap in the range — and the Amiga is destined to fill it. And when that's done, Commodore should have something to offer everyone, at a price (it hopes) they can afford. Whether Commodore is stretching its muscle too far and whether it can tempt people away from Apple, IBM and Atari remains to be seen. One thing's for sure — they're really trying.


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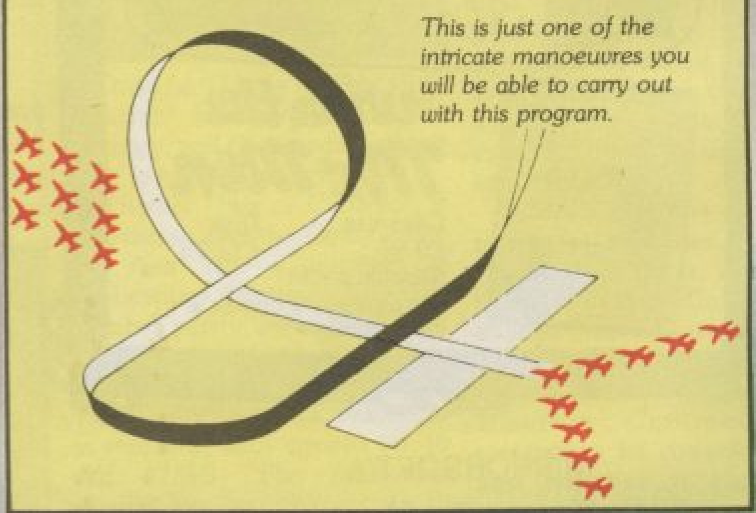
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THE LAST WORD ON AMIGA



ILLUSTRATION: GERRY PARIS

Dan Gutman reports

I promise that this is the last time I write about the **Amiga** computer until Commodore officially announces it. As you may or may not know, there's a new machine cooking in the Commodore labs here in the States, and it's been cooking for nearly two years now — must be on a low heat. It'll be done on 2 June, the day Commodore is expected to introduce it at the Consumer Electronics Show in Chicago.

The amazing thing about the Amiga is that Commodore refuses to even acknowledge that it exists! But word has been leaking out all over the place for the past year. Here's what we know today: it's a 16-bit computer with 256K of random-access memory, and a built-in double-sided 800K floppy disk drive of the 3.5 inch variety. The operating system has been code-named "Intuition". Don't ask me why.

It comes with a mouse, and uses on-screen icons and windows, similar to Apple's Macintosh. It also uses the same microprocessor as the Mac — the Motorola 68000. Unlike the Macintosh, Amiga will be affordable — $750 or so.

Seeing is believing

Nearly a year ago I saw a prototype of the machine myself, and the graphics are *indescribably superior* to anything you've seen, with the possible exception of some of Walt Disney's better cartoons. The machine will probably not be called "Amiga" when it's announced — that's just the name of the company that originally designed it. Commodore bought them out a while ago.

One of the things that makes or breaks a new computer these days is whether or not the software companies release programs for it. I called up a few of the big U.S. software superstars this week and asked them which of the new machines they were working with, the Commodore Amiga, the Atari ST (another Macintosh clone affectionately dubbed "Jackintosh"), or both.

Big business

Trip Hawkins, the President of Electronic Arts (*Seven Cities of Gold, Julius Erving and Larry Bird Go One On One*) told me, "Our strategy on the 16-bit machines is to focus on the Amiga. It has everything that you want a home computer to have. It's really the first real home computer." That's the President of the company talking there, not some guy in the mail room. Trip also said that his company will "take a wait and see attitude" about the Atari computer.

Bill Budge, the genius who programmed the phenomenally successful *Pinball Construction Set*, told me, "I know that everybody is developing for the Amiga. People are banking on that one. Nobody is developing for the Atari. Everybody's waiting and seeing, and that's going to hurt Atari a lot."

Cathy Carlston, of Broderbund (*Choplifter, Bank Street Writer, The Print Shop*) told me, "The Amiga is going to blow everyone's socks off!" (If that puzzles you, it's an American expression that means, "It's great!" Feel free to spread it across Europe.)

She also said, "All the tekkies (the programmers) seem to be jumping up and down all over the place." When I asked Cathy about the Atari, she said she still hadn't even seen a prototype of the machine (and this was in April!).

If a software company as big as Broderbund doesn't have a computer two months before the thing is due to go on sale, you can bet it will be a long time before the Atari has any kind of software library. (Actually, that's kind of a scandal on these shores. Usually, hardware companies *give* prototypes of their new machines to the software companies, so new programs will be developed. Atari has been *charging* the software companies $4,500 for hand-wired prototypes of the ST. They've angered a lot of people because of that.)

Big money on Amiga

Anyway, I've talked with several other industry insiders, and most of them put their money on Commodore's Amiga to come out as the winner. If they're right, this could really change the whole computer scene in the U.S., if not the world.

In the past, the "home computer" companies have only released simple, low-power computers. Now, if the Commodore Amiga truly *does* live up to its expectations and causes a stampede to the local dealer, it will deal a serious blow to the rich boys at Apple, IBM and all the companies that make business computers. Why should anyone pay a fortune for a business computer, when they can buy an inexpensive Amiga that's just as powerful? Things should get interesting around Christmastime, when the Amiga should be hitting the stores over here.

Deaths in the family

As you probably know, there have been a few casualties in the home computer wars over here. In the graveyard: Coleco pulled the plug on their Adam computer early in the year, and IBM sent their PCjr to that great motherboard in the sky recently. Both machines were deeply flawed from the start, and it only proves that survival belongs to the fittest.

One new computer that never even had the chance to be born is the Apple IIx, the rumoured successor to the Apple II. That project has been killed, and Apple co-founder Steve Wozniak has left the company to start his own firm, called "My Best Friend". The word is that The Woz is tired of computers (Apple will be ten years old soon), and will be embarking on some project in the home video field.

I'm not willing to go out on a limb on this one, but I wouldn't be surprised to see Commodore pull the plug on the Plus/4 to join the others in the computer graveyard. It hasn't been received kindly in the U.S., and with all the other new computers from the company, Commodore may not want to waste their resources on a loser. Time will tell.

Commodore will have their C-128 in the stores here by the time you read this, priced between $299 and $329. It seems like the perfect upgrade for Commodore 64 owners — all your software and peripherals will work with the new machine. Commodore says that at least 25 software companies will be introducing new programs for the C-128.

Probably the biggest drawback about the 128 is that everyone is *really* waiting for the Amiga, which is more of a revolutionary computer. Oops, I forgot, I'm not going to talk about that any more until Commodore admits that it exists. See you next month. □

US Hotline US Hotline US Hotline US Hot

Commodore computer owners are in for a mid-Summer bonanza of new games, printers, disk drives, and weird and wonderful add-ons at the sixth Commodore Computer Show at London's Novotel on the 7th, 8th and 9th of June.

If you are attending the show here is an offer not to be missed. These three pages contain all the information you need about the exhibitors, new products, and events at the show.

Pull out this supplement and take it along to the show with you. No need to fork out for an official show guide as **Commodore User** gives you all the information you need absolutely free.

Commodore User readers also have an opportunity to win a disk drive, and one year's free subscription to your favourite computer magazine at the show.

To win a prize all you have to do is dress up as your favourite computer hero — or celebrity who stars in a computer game, and go along to the Events Room at 3.00 p.m. on the day you are attending the show.

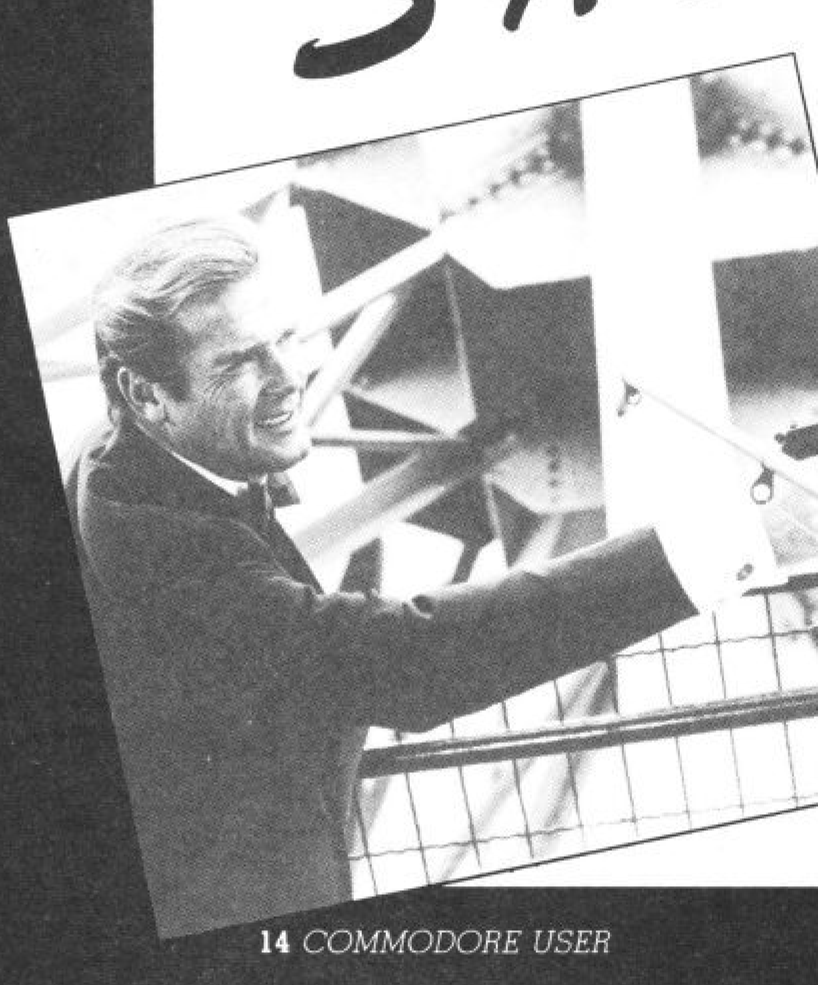
There will be a 1541 disk drive for the best costume of the day. If you don't want to look silly on your way to the show carry your costume with you and change when you get there.

Show highlights are likely to be the first UK showing of the new Commodore computer — the C128, reviewed exclusively in **Commodore User** last month. An update of latest information on this new computer is to be found in this issue.

The computer game based on the new Bond film ''A View To Kill'' is also launched at the show — and you can win one of ten View To Kill T-shirts copies being given away per day by Domark.

Simply cut out the coupon overleaf and take it along to the Domark stand.

SHOW-TIME AGAIN



ADAMSOFT

Adamsoft are specialists in utilities for Commdore computers. Products on display include *Zoom Pascal, Tiny Forth, Graphics Designer, Checkbook Manager,* and *Budgeteer*.

ALLIGATA

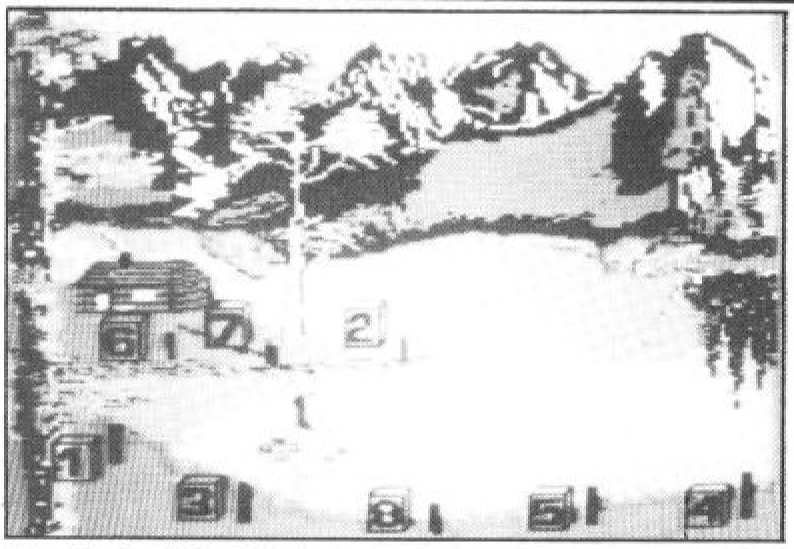
Jackie Charlton will be the main attraction at the Alligata stand. The ex-England soccer star will be there to promote Alligata's latest game — Jackie Charlton's *Sporting Gun*. The rest of the range of games will also be on display.

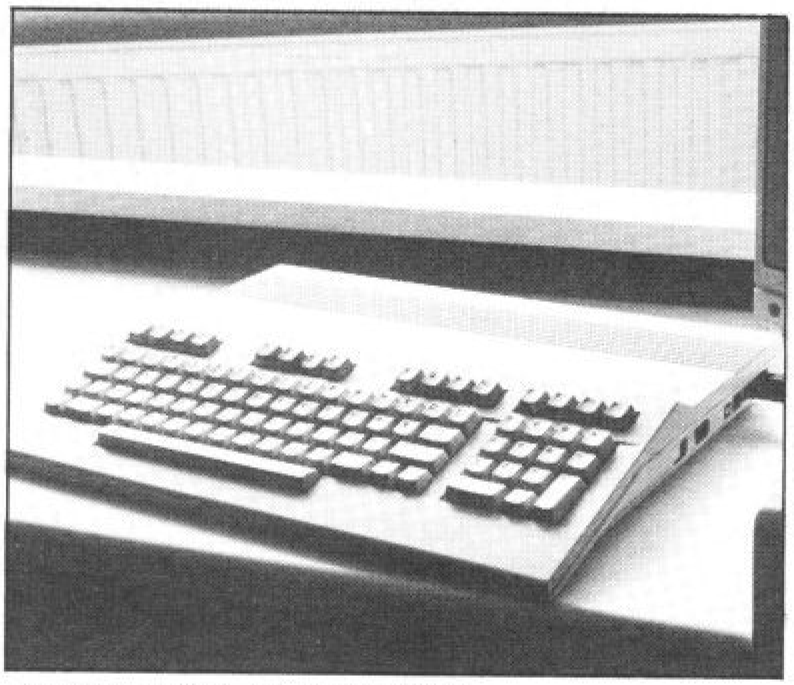
ANAGRAM

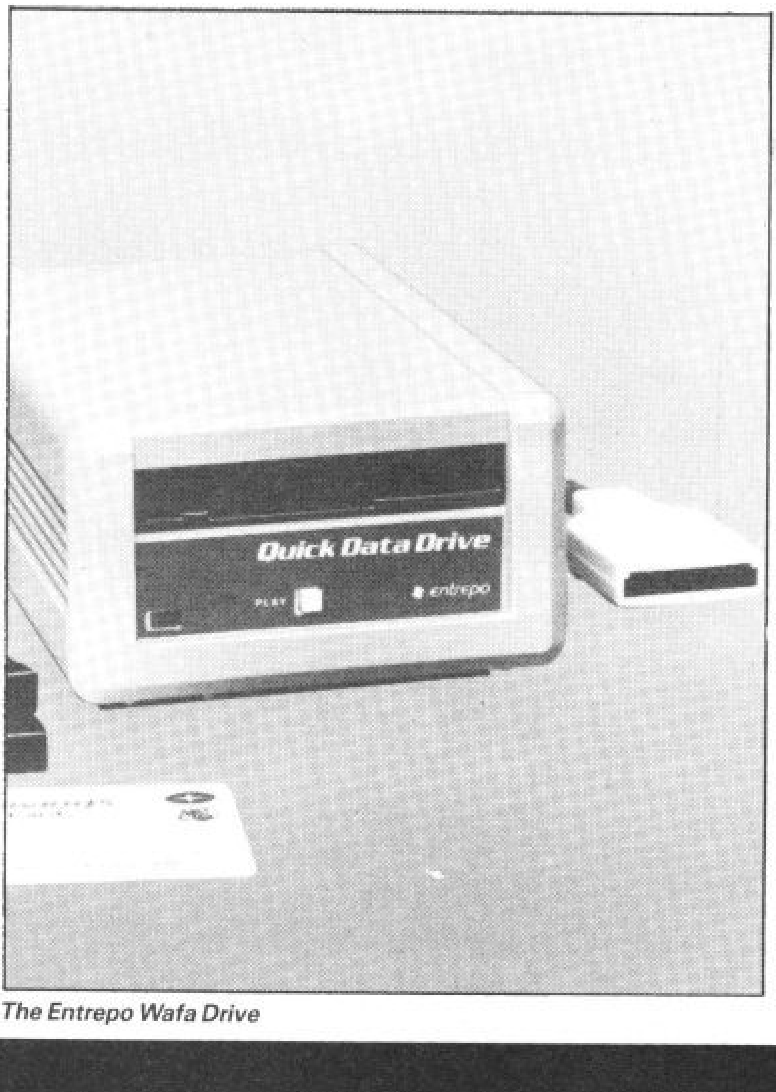
Anagram will be unveiling their Multi-User Integrated Accounts package for the Commodore PC. Also on show will be their Stock Control, Cash Book, and Basic Accounts packages for the 64.

ANIROG

Anirog have several interesting things lined up for the show. The big game is *Jump Jet* which Anirog claim is the first game to use speech as an integral part of the game rather than as a frill. Visitors can also check out *Super Sketch*, and the *Voice Master* on the Anirog stand.


Jack Charlton's Sporting Gun.


The main attraction — Commodore's 128



The Entrepo Wafa Drive

ASK

ASK are educational software experts. Their excellent Time Trucker is a classic and will be on display at their stand together with the rest of the range.

BEAUMONT

Summer camps for computer enthusiasts is the business of Beaumont. Information and literature is available at their stand.

BUBBLE BUS

Bubble Bus will be showing their *Cave Fighter* for the 64, Vic 20, and C16 plus their entire range and a brand new 64 game called *Honest Joe*.

COMMODORE

As you can probably guess the biggest stand at the show will be Commodore's. The main attraction here will be the first UK showing of the C128 — Commodore's new computer to replace the ageing 64. Regular Commodore User readers will have seen our exclusive review of the machine in last month's issue.

If you missed it (shame on you) the main points of interest are that it is completely 64 compatible, has a '128 mode' and a third processor (Z80) which lets it run the CP/M operating system. In short — you've got three computers in one.

On top of that lot, you've got a much better version of Basic and the facility for an 80-column screen display. Prices have yet to be announced but informed sources think it will be offered at around the £300 mark.

On the games front Commodore will also be showing the third in their series of sports simulations. *Soccer*, and *Basketball* were classics and the new game *Tennis* is expected to follow suit.

DOMARK

A likely show stopper could be Domark's *A View to Kill*. Domark are the people who had the enormous success with *Eureka* — the four part adventure with the £25,000 prize. The game will be seen for the first time at the show. It is an arcade game closely related to the stunts in the film. According to Domark, James Bond actor Roger Moore is a big fan of computer games. He won't be attending the show but if you keep your eyes peeled you might just spot a Bond girl or two.

GENERAL AUTOMATION WORLD TRADE

The much talked about Entrepo Wafa Drive will be on show for the first time at the show. The Entrepo is an alternative to the much criticised Commodore disk drive. How much will it cost? Will the software houses support it? Ask these questions when you visit the G.A.W.T. stand at the show.

HANDIC

Handic will be exhibiting their wide range of business utilities for the 64. New amongst these is *Base Result* — a data base program.

ICPUG

The letters stand for Independent Commodore Products User Group. ICPUG is an invaluable information source for users of all levels. Visit their stand and find out about their activities.

INTERGALACTIC ROBOTS

Robots are often heralded as "the next big thing" after the home computer boom has run out of steam. IGR are one of the leading UK exponents of the theory. Check out their low price Zero Robot a the show.

LLAMASOFT

Yes, Yak the Hairy will be at the show. He will be freaking out with his new musical experience — *Psychedelia* — plus a brand new game called *Batalyx*. Batalyx will not be 100% finished in time for the show but certain preview screens are promised in time.

MIKRO GEN

Wally experts Mikro-Gen will be much in evidence at the Show. All the Wally games will be on display. The newest release will be *Herbert's Dummy Run*. In this game the baby from *Everyone's A Wally* has got lost in a department store. Mikro-Gen have high hopes for this game. A spokesman for them said it was "better than *Pyjamarama*".

PEAKSOFT

Peaksoft's popular game — *Tim Love's Cricket* will be the subject of a three-day high score competition at the show. The company are promising daily prizes as well as one super-duper prize for the highest score of the whole show.

PHOENIX PUBLISHING

Phoenix have published several books on the subject of Commodore Computing. Commodore User readers will be familiar with their fun Puzzles for the 64. The whole range of books will be on sale at the show.

RAM ELECTRONICS

Ram will be showing their range of Ram packs, and utilities for the Vic and 64.

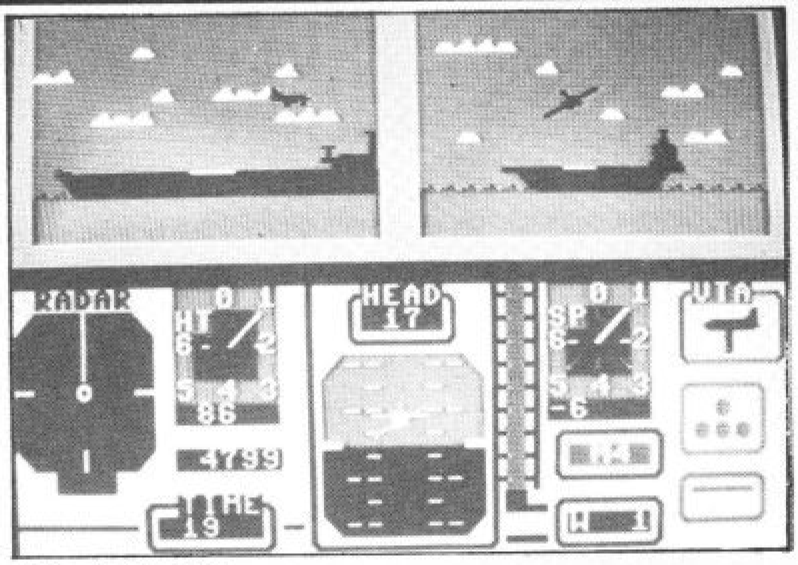
STONECHIP

Something of interest here for C16 owners visiting the show in the shape of a Ram pack. Also on show are a 16K switchable Ram for the Vic, a cassette interface for the 64, and a Programmers aid.

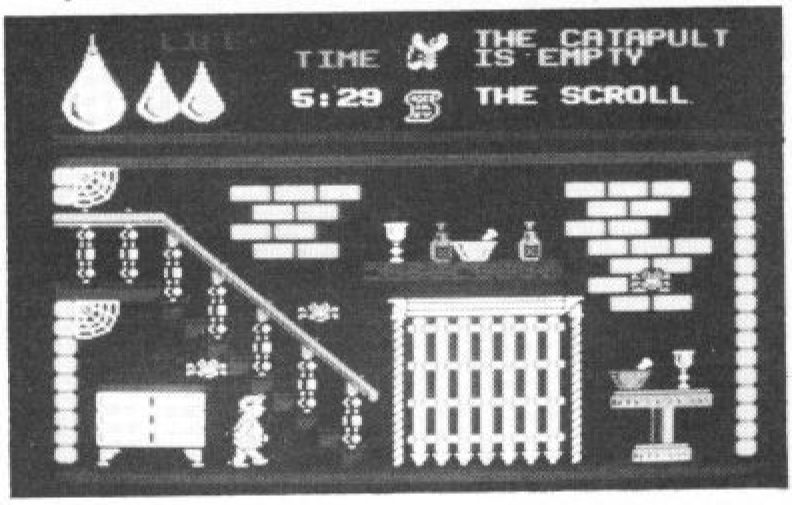
SUPERSOFT

Supersoft have two stands at the show. Stand one is in the games area and will be majoring on their brand new cricket game. Supersoft's Peter Calver thinks this game is going to do for cricket on the 64 what *International Soccer* did for football. That's high praise indeed — and well worth checking out.

Stand two will feature the firm's pride and joy — their Sound Sampler. This can record any sound, digitise it, and enables you to play around with the inside of the computer. Computer music buffs will not want to miss having a look and listen to this.



Anirog's Jump Jet



Herbert's Dummy Run

HOW TO GET THERE

The 6th Annual Commodore Show will be held at the Novotel in Hammersmith. The Novotel is less than five minutes walk from Hammersmith tube station. Metropolitan, District, and Piccadilly lines pass through Hammersmith. Several buses also terminate at Hammersmith Broadway.

The Novotel is a large modern hotel with several bars, restaurants, shops, and a car park adjacent.

Admission is £2.00 for adults and £1.50 for children.

U.S. GOLD

U.S. Gold are the leading 64 games house. They will be selling their whole range at the show at a special offer price. New games on display for the first time will be the excellent talking game from Microprose — *Kennedy Airport Approach.* Commodore User told you about the amazing speech in this game last month. Have a listen for yourself if you attend the show — you'll be knocked out. Also on show for the fist time will be *Beach Head II*, and *Dropzone 64.*

VALIANT TURTLE

The turtle is a computer controlled robot. Used extensively in education the Turtle makes an interesting add-on for your computer.

VIZA SOFTWARE

Viza software will be exhibiting their highly praised business packages Viza Write and Viza Star as for the 64 as well as versions for the new Commodore 64.

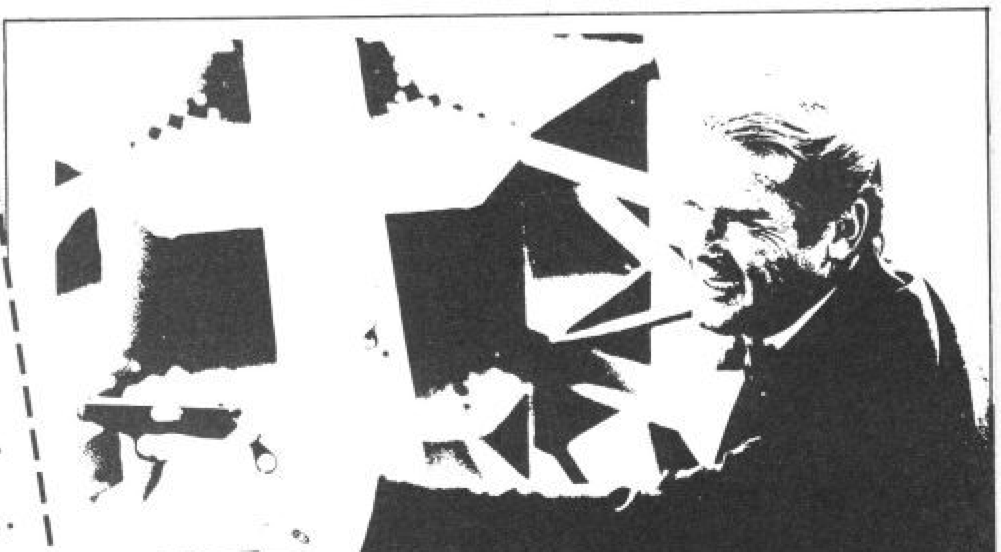
PLEASE LET ME HAVE ONE FREE VIEW TO KILL T-SHIRT

NAME: ....

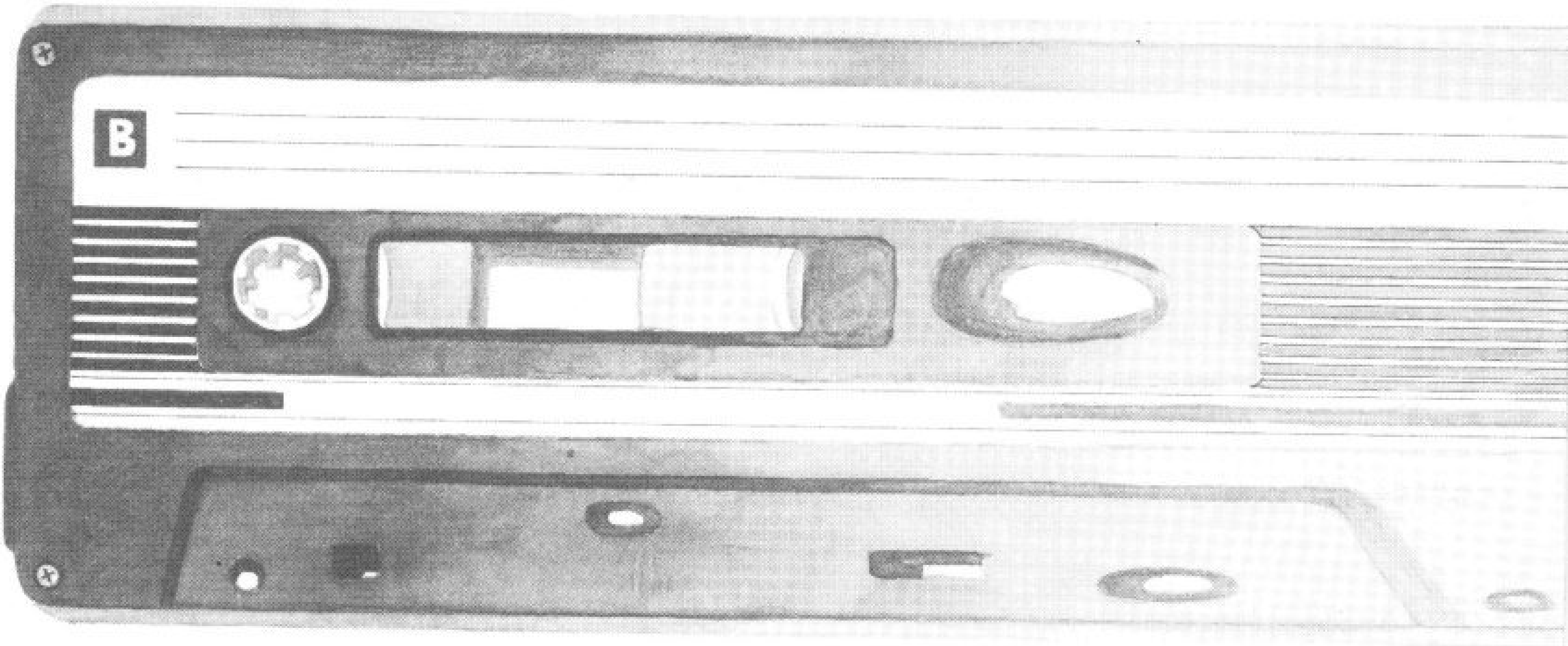
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TURBO LOADERS

How they work, and when they don't . . .

Ever wondered how the fast-loading systems on commercial software work? And why they give you more bad-load headaches than ordinary tapes? David Bolton explains all and gives a few simple tips for better loading.

by David Bolton

Do you remember the Bad Old Days (not so long ago) when your favourite program took around ten minutes to load? The problem has got worse now that programmers have explored nearly every nook and cranny in the 64, carving out up to 56K of memory for themselves. Since most of that is hi-res graphics, you could wait up to twenty minutes for such a program to load — rather like queuing at Sainsbury's.

So it's loud applause for Turbo loading systems which can speed up the normal 50 bytes (or characters) per second loading time tenfold — and that's faster than the 1541 disk drive.

Types of fast loader

You've probably noticed the many different brand-names for Turbo loaders, but they all fall into two basic categories: those that leave the screen blank whilst loading, and those that either flash gaudy colours or leave you to stare at a picture.

The less complicated is the blank-screen version. Not to get too complicated, the reason for that lies with the VIC chip, which manages all the video work. VIC uses a lot of memory and, quite often, the processor needs to be stopped whilst it's working. This affects timing, and since the cassette unit needs very precise timing, it's a good idea to turn the screen off.

The second type is a lot less boring to look at, but you pay the price of a slower loading speed — about five times the normal speed. Some of these loaders need two timers to count down to zero exactly when a signal was received from the datasette.

How they work

First, let's look at the way a program is saved on to tape. When you plug your datasette into the Commodore 64, you're effectively making four connections. There's the 'read' line (data flows to the 64 from this), the 'write' line (for saving programs), a 'sense' line that detects keys pressed on the datasette and the power line for the motor.

To save a program to tape, each byte is picked up out of memory and is then rotated eight times (remember there's eight bits in a byte), with each bit (either a 0 or a 1) going to tape one by one — pretty pedestrian, eh?

How does the datasette distinguish a 0 from a 1? The signal on the tape is either high or low and the 'read' line is wired to an interrupt pin on one of the Input/Output chips. So when the signal goes from high to low, the I/O chip signals an interrupt. So far so good. The time between interrupts is measured using the I/O chip timers, and this determines if the bit is 0 or 1.

So to speed up the loading time, you simply shorten the times for the 0 and 1 bits, by changing the clock speed — cunningly simple.

By the way, the Commodore system is a little more sophisticated. In normal mode, it manages to send only 800 bits per second (that's 100 bytes). Remember, I told you it ▶

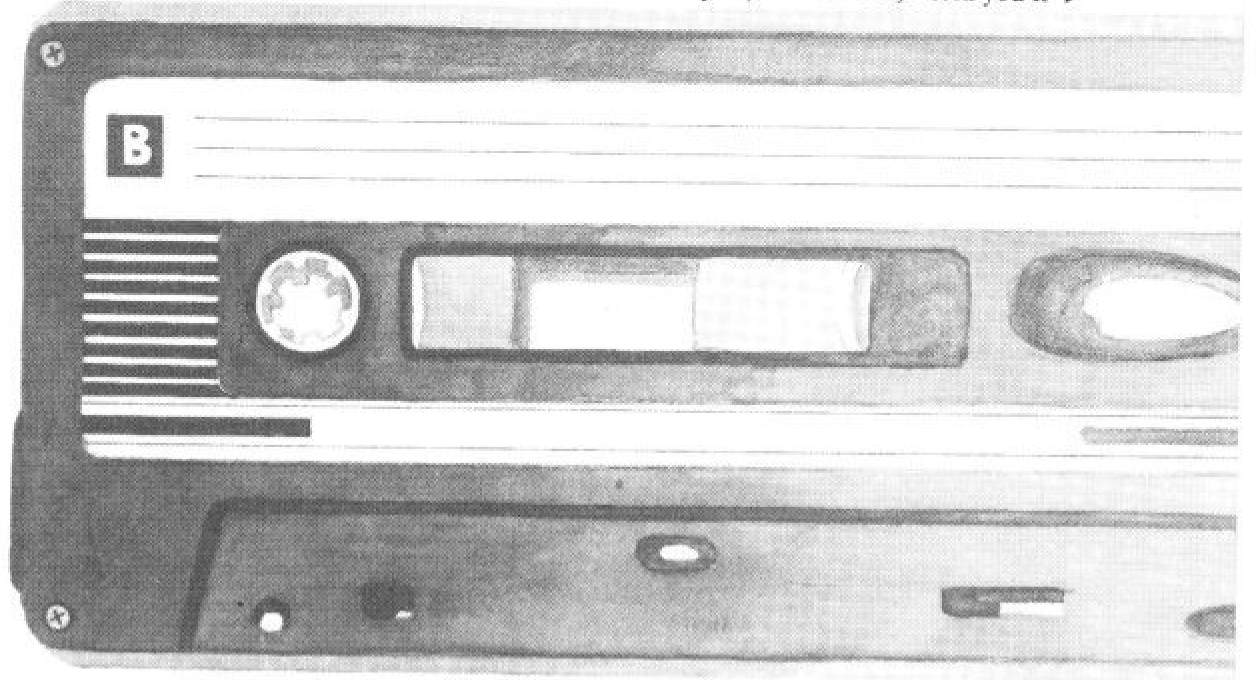
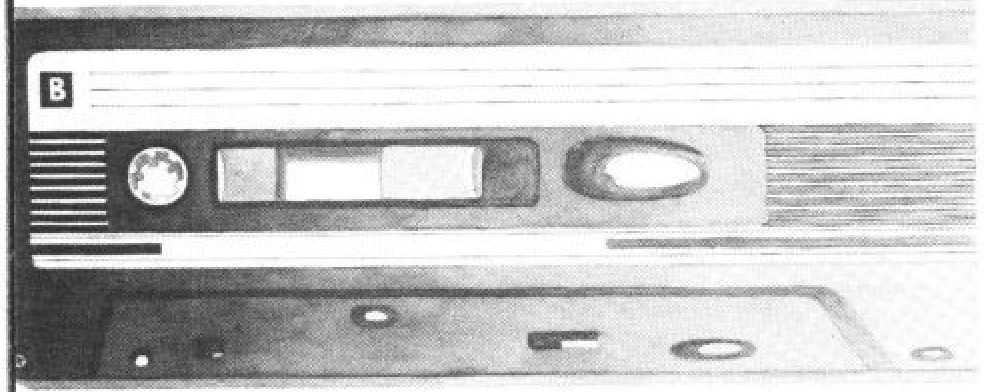


ILLUSTRATION: TONY ANSELL



TURBO LOADERS

loads in at 50? Well, the answer is that two copies are actually saved on to tape and compared when loading. So the other method of speeding up loading is to copy the load routine from ROM to RAM and rewrite it so that data is only saved once.

Troubleshooting with fast loaders

Avid gamesters won't need me to tell them that there are many faults with fast-loading tapes. Not only do they throw up more load errors, you're more likely to have to dash down to your dealer and change them.

Why all these problems, and what can you do about them? Well, some things are out of your hands. Such as the duplicators used to copy tapes; many of them just can't handle the high speeds. For example, if a duplicator works 32 times faster than normal, it's copying a Turbo tape (eight times faster than normal) at 256 times the Commodore 'intended' speed — phew.

Now the duplicators have got their act together, there are still problems — with Commodore datasettes. Rumour has it that some newer models (all manufactured in the Far East) have inferior tape heads that have a genuine dislike for Turbo-tapes. But if you've successfully loaded tapes on your machine, don't worry.

Here's a few simple tips for better loading:

- **Keep your heads clean** — the most likely cause of bad loads is dirt (oxide from the tape) getting on the read/write head. Use a good-quality tape cleaner, preferably the liquid type. They're pretty cheap, too.
- **Keep your heads aligned** — the angle at which the tape passes over the head is called the 'azimuth' angle. If this is not exact, you get a weaker signal and consequently a bad load. Interceptor Micros has developed a kit called 'Azimuth 3000' costing £8.99, which lets you get your azimuth just right.
- **Keep away from the TV** — bad loads can be caused by using your datasette too close to a TV or monitor, which give off whacking amounts of electromagnetic radiation. If you're working in a cramped space, simply switch the telly off while loading.
- **Buy good-quality tape** — commercial tapes are usually of good quality, but if you do a lot of programming, buy only good-quality tape which is not prone to oxide shedding. That should help to eliminate the 'dirty-head' problem already mentioned.

So now you know how Turbo loaders work and what you can do to get your games running as quickly and easily as possible — after all, that's what Turbo systems are all about. Happy loading.

A REGULAR SERIES

HACKERS ON COMPUNET

Avid browsers round Compunet's "The Jungle" area will have noticed a new section called "Hacker's Hangout", which looks as though it's going to be a mine of information for dedicated code-busters and digital safe crackers.

The section contains around one hundred phone numbers for private viewdata systems and bulletin boards for you to try out — and most of them you can get for free. Nearly all these work on the 1200/75 baud rate that's standard on the Commodore modem, but you'll need 'terminal emulator' software (written by Y2 Computing and downloadable for £10) to get cracking.

Notable inclusions are Thomson's viewdata system for travel agents, IBM, the BBC's Microlive bulletin board and Optel (never heard of it). Apart from phone numbers, there's also hints and tips on breaking into the aforementioned, the idea being that a successful hacker will impart his or her knowledge to the rest.

So what does Compunet think about all this, considering that a test-case involving our very own Robert Schifren, is due to take place in the courts?

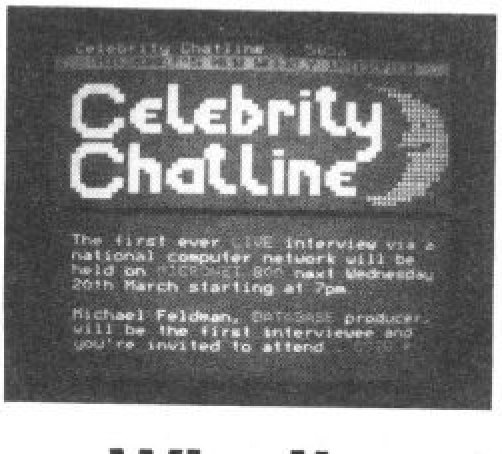
Compunet's official line is that any information in The Jungle is the responsibility of whoever put it there. "We can't exercise that type of editorial control", said a spokesman. "We act merely as the carrier — but that doesn't mean we condone it". Nothing like sitting on the fence.

CHATLINE CHAT

Meanwhile on Micronet, a much less controversial activity is capturing the punters' imagination. Last month in HH, we reported Micronet's new Celebrity Chatline service which allows subscribers to send questions and messages to an on-line Celebrity.

Michael Feldman, the man behind Channel 4's "4 buffs on 4" program was first to get the treatment, followed by some more not-quite celebrities. So when is Micronet going to come up with some real household names?

Well, not for some time. Lined up for future sessions are Rob Cousins, the man behind the SoftAid games tape, and Kevin Maxwell, son of The Great Newspaper Proprietor and boss of Mirrorsoft — hmm, sounds a little more interesting. You'll find future dates and times posted on Micronet.





by Robert Schifreen

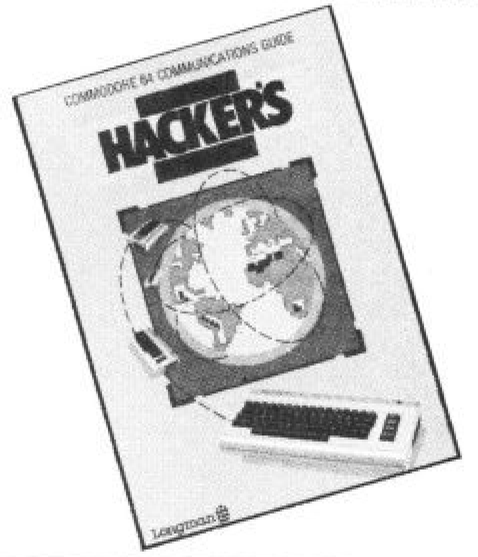
Just write to him at: Commodore User, 30-32 Farringdon Lane, London EC1 3AU.

SOFTENING THE BLOW

Compunet users should have no problem up- and down-loading software from their system. Not so for the unfortunate Commodore contingent on Micronet who have suffered in silence since Micronet was made available to them.

But according to Micronet software boss, Phil Godsell, the new terminal software from Y2 Computing will change all that. You can download it free to replace the former offering from now-defunct OE.

"It cost us a pretty penny" reveals Godsell, "but it will work with 80-90 percent of Commodore software". So we should see a lot more Commodore material in future, covering games, utilities and business. We wait and see.



THE HACKER'S HANDBOOK MARK 2

No, this isn't the book that caused such a stir a short while ago. This version by Geof Wheelright and Ian Scales (unfortunately it's got the same name) looks like being a much more 'respectable' offering — since Longman's the publishers, describe hacking as merely "communication between one computer and another".

The book is a brief and well-designed introduction to communications: how to get started, the equipment and software needed, and ideas and information on the possibilities opened up by computer communications. There's also a generous number of screenshots that give you an idea of the types of information you can call up.

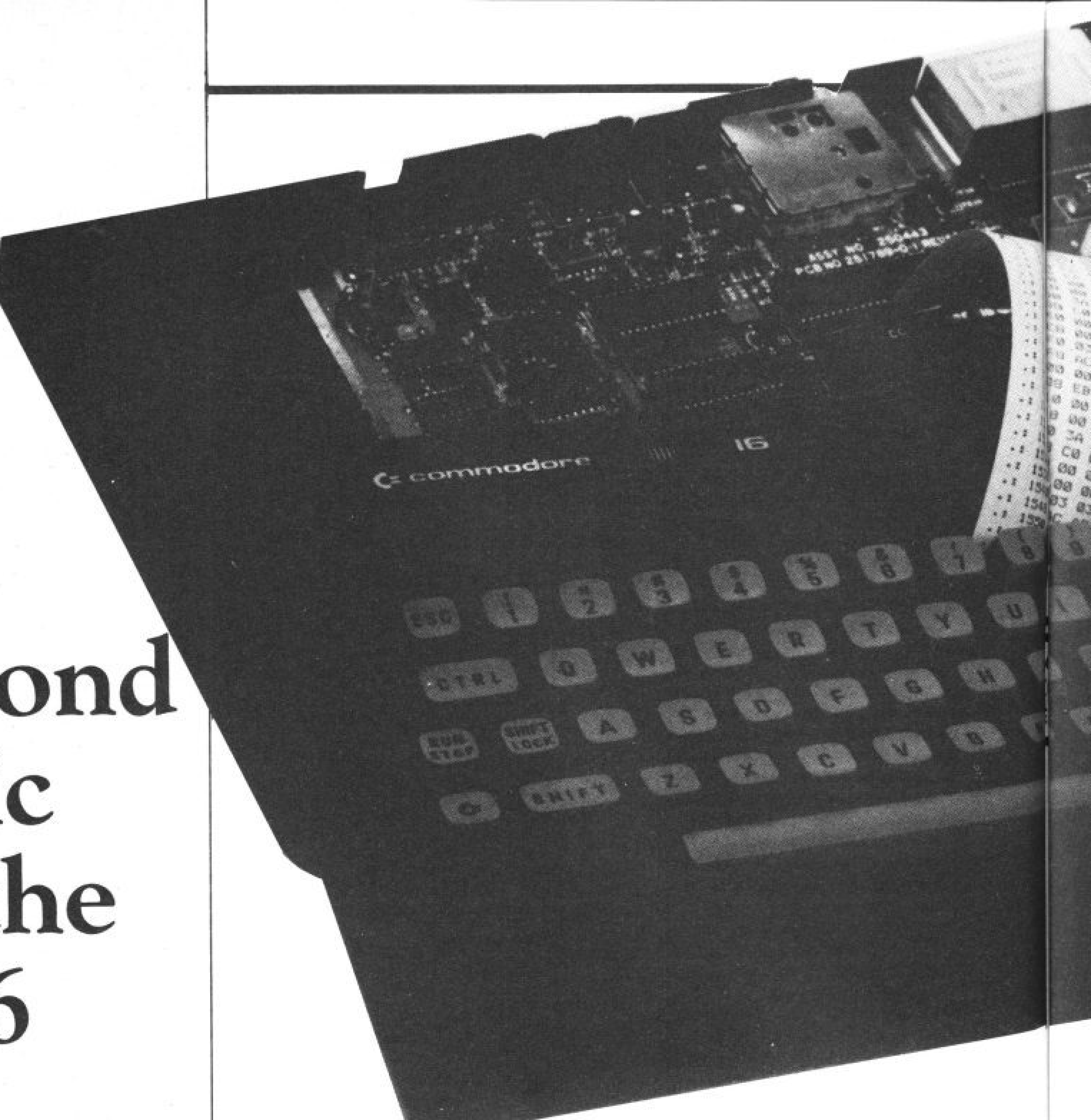
But for those of you who'd rather do something more practical than just browse around in the likes of Compunet and Micronet, there's information on electronic and on-line services provided by British Telecom, Prestel and major financial institutions.

Although the series covers the most popular micros, there is a Commodore 64 version, costing £5.95. More details on 0279 26721.

To win the pristine copy we have here in the Commodore User office, send us a joke about Hackers that we'll actually laugh at. On a postcard please to: Hacker Joke, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

What's on Micronet and Compunet

Beyond Basic on the C-16



Part 1: introducing TEDMON

Why are the Basic programs you've managed to produce on your C-16 never as slick and spectacular as the games you buy in the shops? Simply because they're not written in machine-code. But don't panic: machine-code won't make your hair fall out, especially since the 16 has TEDMON, a built-in machine-code monitor. Here's a nice 'n' easy introduction to using it. Next month, we'll be running through some example programs.

by Ken McMahon

I can't promise you that, by the time you've read this article, you'll be able to sit down and write the next megagame. But you will at least have taken your first steps in machine-code programming and, after all, everyone's got to start somewhere.

What is machine code?

The simple answer to the above question is that machine-code is the language that the microprocessor (the bit that does all the work) in your C16 understands. IF you thought it understood Basic, then, in a sense, you'd be right. But, when you RUN a Basic program it's converted into machine-code before the microprocessor even gets a look at it.

Think of it this way. Suppose you had an Italian friend and you wanted to speak to him, but you don't speak Italian. Well, you'd have to get hold of an interpreter, tell them in English what you wanted to say, and they would pass the message on to your friend in Italian.

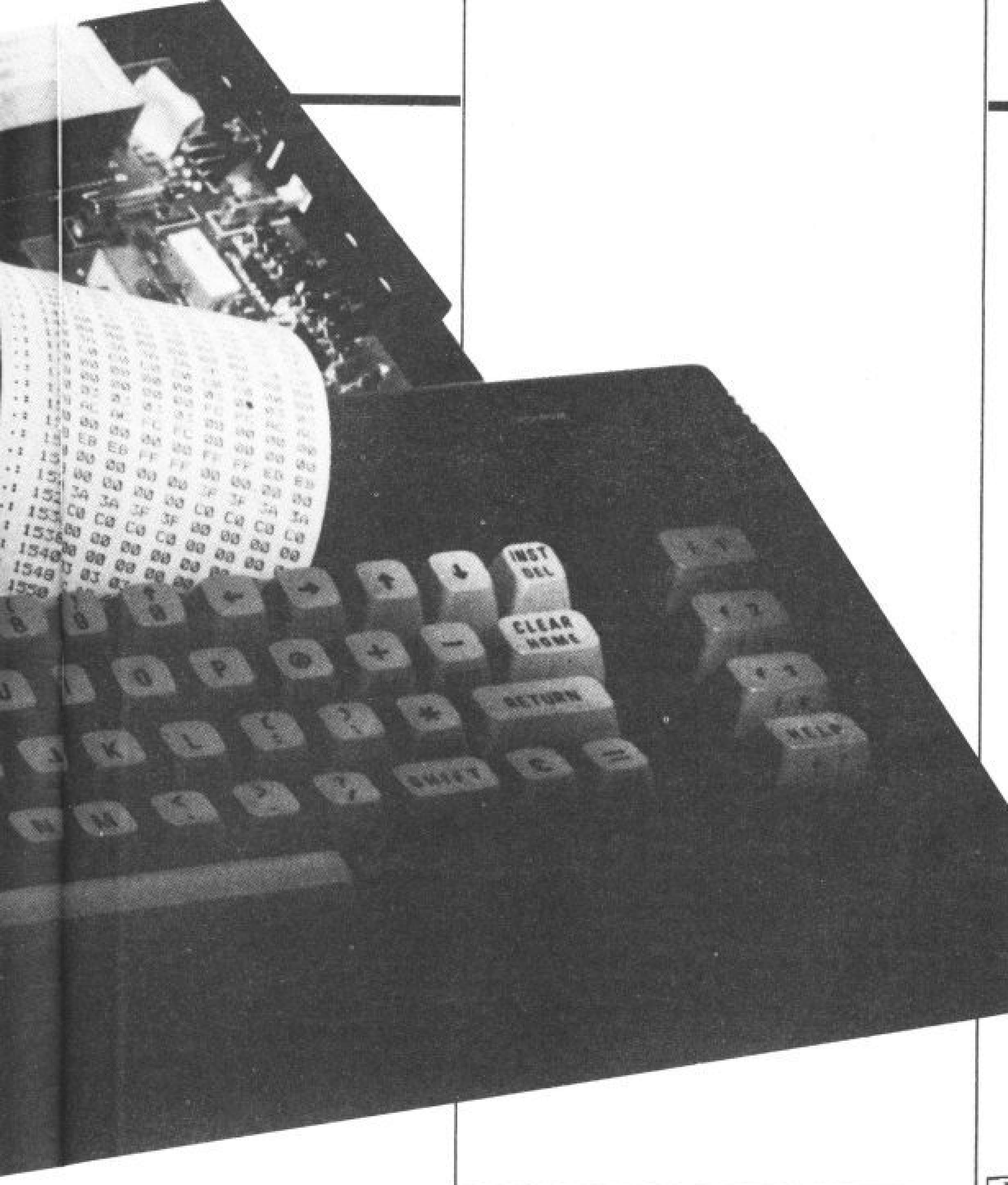
The C16's interpreter is the Basic ROM. It's actually a 4K long machine-code program that the nice people at Commodore put in the C16's memory so that you could talk to it in Basic. That's why there is only 12K of the C16's total 16K memory available for your programs.

So why all this messing about with interpreters? Why doesn't everybody just learn machine-code instead of messing about with a language that has to be interpreted before the computer can even understand it? The answer is quite simply that a machine-code program is just a list of numbers and is, therefore, very difficult to understand, unless, of course, you happen to be a computer.

Speaking Italian

You may have gathered that I've not been totally honest up to now. If machine-code was just a bunch of numbers then no one would be able to understand it, would they? To find the answer to this one we'll first have to look at how the computer holds numbers.

Your C16, being an electronic machine,



understands only two numbers — on and off, or, put another way, zero and one. So, how does it count up to two, or for that matter two thousand? *Binary*, that's how.

Binary, or base 2, is just another way of counting, like decimal. In the decimal system, when you get to nine, you carry over a one to the next column, which represents ten times the amount of the column to its immediate right. The same thing happens in binary, except you run out of numbers at one, instead of nine, and so have to carry one over. Binary then, looks like this:

Binary	Decimal
00001	1
00010	2
00011	3
00100	4
00101	5
01010	10
01111	15
10100	20

So, while our decimal columns go in order of units, tens, hundreds, thousands etc. binary columns go units, twos, fours, eights, sixteens, and so on. To get the hang of it, try converting a few decimal numbers into binary numbers and back again.

Bits and Bytes

Imagine the C16's memory as being made up of thousands of little boxes. Each of which has an address, so that you know where to find it, and each one can hold a number between 0 and 255. This is actually how the computer's memory is organised. Each column of our binary number is called a bit, which stands for BInary digiT.

The little boxes in the example each contain one BYTE of data. A byte is an eight digit binary number and, hence, contains eight bits. Now you can see why our little box, or byte, can only hold numbers up to 255. It's because the binary number 11111111 is 255 in decimal.

Try this experiment on your C16. The POKE and PEEK commands allow you to put and retrieve numbers to and from the computer's memory in Basic. Type in **POKE 1000, 255/RETURN**. Now, just to check that it's there, type in **PRINT PEEK (1000)/RETURN**, and you'll get the answer 255.

If you try to POKE **1000, 256/RETURN**, the computer will respond with ILLEGAL QUANTITY ERROR, because the number you tried to poke in was too big for the byte to hold — a case of byting off more than you can chew . . .

Hexadecimal

Right, now you've mastered binary I'm afraid there's another number system to contend with, but this one actually makes life easier rather than more difficult. If you tried converting binary numbers to decimal earlier on, you'll appreciate it's not an easy task. So some bright spark (probably a Greek) invented *hexadecimal* to make the job easier.

Hex, for short, has sixteen numbers instead of the usual ten. After running out of numbers at nine, it goes A, B, C, D, E, F, then, rather belatedly, on to 10, 11, and so forth. The hex columns go in units, sixteens, two hundred and fifty sixes, I won't bother with the next one (O.K. 4096).

Perhaps you can already see that hex bears more of a resemblance to binary than decimal. No? Well look at it this way. If you divide a byte in two, you get two four bit sections. For all the good it will do, you might as well know these are called nibbles! Each nibble can hold a number between 0 and 16 and the left hand nibble is sixteen times the right hand one.

For example, take the binary equivalent of 255, which looks like this: 11111111 = 255. Or, as two nibbles: 1111 and 1111.

On the left side:	(1111 = 15) *16	= 240
On the right:	1111	= 15
		total = 255

Now, in hex we don't have to do any multiplication, because our left hand column is already sixteen times the right hand one, so
1111 = F : 1111 = F : total = $FF
Incidentally, the $ sign stands for hex. Look at the examples in Figure 1 to help you get the hang of it.

FIGURE 1
00010001 : 0001 = 1 : 0001 = 1 : total = $11 (17)
10001000 : 1000 = 8 : 1000 = 8 : total = $88 (136)
11100110 : 1110 = E : 0110 = 6 : total = $E6 (230)

Hopefully, you can see that it's much easier converting from binary to hex, than to decimal. Don't worry if you can't get the hang of it straight away. It takes some adjusting to!

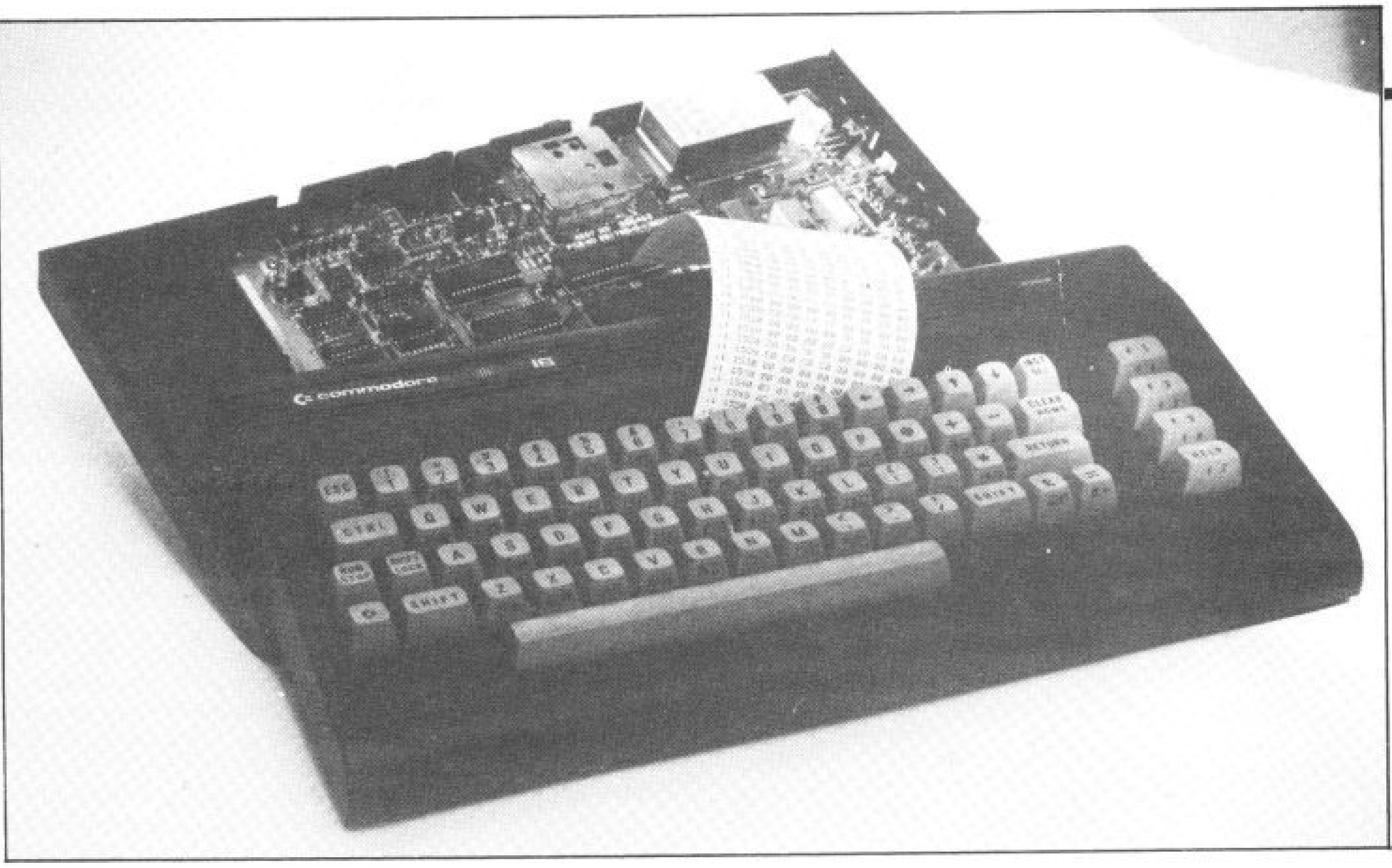
Try converting decimal numbers into hex and back again. You can use the C16 to check your answers. To convert a decimal number, xx, to hex, type **PRINT HEX$ (xx)/RETURN**. To go from hex to decimal, type **PRINT DEC ("xx")/ RETURN**.

Before we get off numbers there's one last thing. Obviously, the C16 is capable of manipulating numbers much larger than 255. The way it does this is to stick two bytes together, making a kind of sixteen bit superbyte, which can hold any number between 0 and 65535.

Using TEDMON

That's the theory out of the way. Now we can start learning about machine-code the best way, by examining the insides of the C16. No, no, put that screwdriver away: we're going to examine the C16's memory using TEDMON, the inbuilt machine-code monitor.

Monitors like TEDMON allow you to



Beyond Basic on the C-16

do much more than just look at memory locations, and are an essential tool for the machine-code programmer.

Simply type MONITOR and press Return to enter TEDMON. The first thing that happens is that the contents of the microprocessor's registers are displayed.

The first of these, **PC**, is the Program Counter and it contains the current address of the machine-code program being carried out. Of course you can't see this while a program is being run, so PC usually contains the last address of a program that has just finished.

The only other registers you need bother with for now are **AC, XR,** and **YR**.

AC is the accumulator, or **A register**. This is the register that does all the calculations like addition and subtraction. **X** and **Y**, though not exactly the same, are very similar. They are the microprocessor's only other working registers and are used mainly for counting and a method of getting data from memory called Indexed Addressing, which I'll come to later.

'**M**' displays a section of memory. Try typing: **M 8188 8382** then Return. (Don't forget to enter TEDMON first by typing MONITOR.) Slow the display down by pressing the Commodore key. If you leave out the second address (M 8382), the first 96 bytes of memory, from $8188, will be displayed, just enough to fit on the screen.

The number on the left of your screen is the address of the memory location you are looking at. Following this, the contents of the next eight bytes are shown. The characters on the right are the chr$ equivalents of the codes in that section of memory. If they look familiar, it's because the section of memory you are looking at is the reserved word table in the interpreter ROM. It contains all the Basic keywords, and a few other things besides.

Move commands

The '**F**' command allows you to fill an area of memory with a particular number. Type in: **F 2000 2C00 A9**. Now type **M 2000 2C00** and you will see that every single memory location from **$2000** to **$2C00** does indeed contain **$A9**.

'**T**' is another useful function. It transfers a block of memory from one location to another. For instance: **T 2100 2C00 2000** moves the block of memory from **$2100-2C00** to a new location starting at **$2000**.

The Hunt or '**H**' facility enables you to search through a block of memory for all occurrences of a particular number. Type: **H 8000 9000 A0**. The numbers which appear on your screen are the addresses of all the locations between **$8000** and **$9000** which contain the number **$A0**.

Hunt can also be used to find the location of a particular character, or group of characters. Try typing: **8000 9000 'COMMODORE BASIC**, and you will be given the address **$80CF**. Check this using the **M** command and you will find the message the C16 puts on the screen when you switch on.

'**S**' allows you to save a machine-code program to tape or disk. Always save a program before running it, or you may never see it again. To save a program starting at **$2000** and finishing at **$3000** type: **S "PROGRAM", 1, 2000, 30001**. If you are using a disk drive change the ,1 to ,8. To load the same program, just type **LOAD "PROGRAM", 1** (,8 for disk users).

Your first program

'**A**' is the command that tells TEDMON to *Assemble* a line of machine-code. Type in **A 2000 LDA #$01**. When you press Return, the following will appear on the screen:

A 2000 A9 01 LDA #$01
A 2002

Congratulations, you've just written your first piece of machine-code. But what does it all mean? Well, what you've done is to LoaD a register called A (think of it as a variable for now) with the number 1. **$2000** is the address at which our short program begins. The number **A9** is the code for **LDA** and **01** is the number we want to go in there.

LDA #$01 is actually an assembly language instruction. I think you'll agree, it's much easier to remember than A9 01 and TEDMON does the conversion for us.

You'll notice the cursor is blinking on the line below next to **A 2002**. This is because the monitor is waiting for you to enter the next assembly language instruction in the program. It goes at address $2002 because the first instruction occupies two bytes. For now, break out of the assembly by pressing Return, as there is one other command you should know about.

It follows that if assembly language can be converted into machine code, then the reverse is also true. The Disassemble, or '**D**' command, will turn a block of code into assembly language. Type in **D 2000/RETURN** and you will see the one-line program you typed in a few moments ago. If you want to see a more substantial program, type **D 9000** and you will see part of the program that makes up the Basic ROM. Assemble and Disassemble are the two most powerful commands available on TEDMON and, probably, the ones you will use most.

That's all for now but, next month, we'll be ending this mini-series by writing a few short machine-code programs. Stay tuned.

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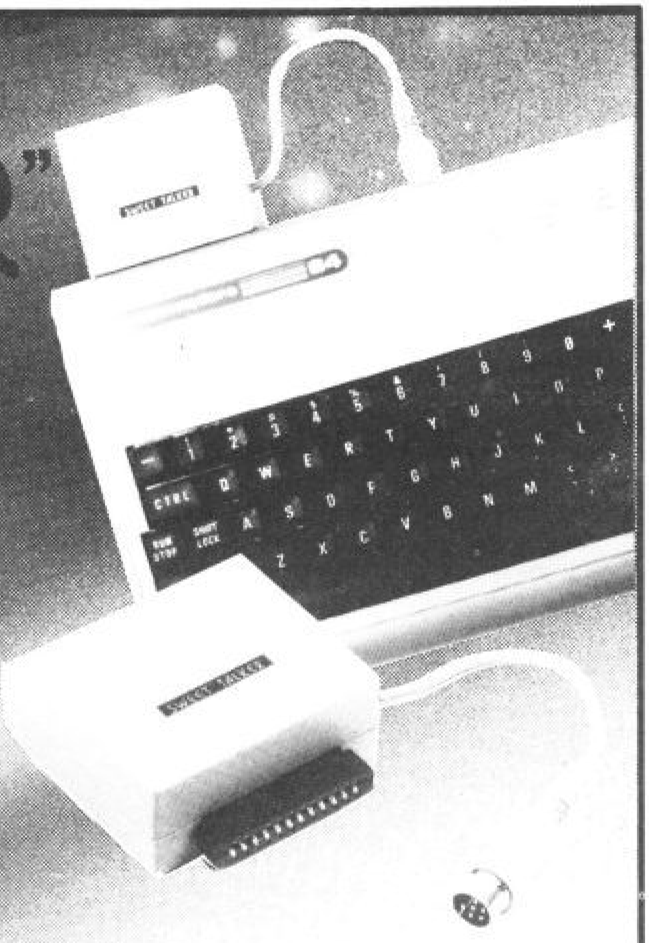
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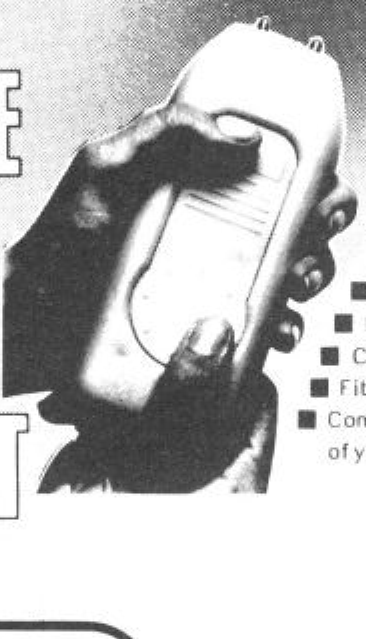


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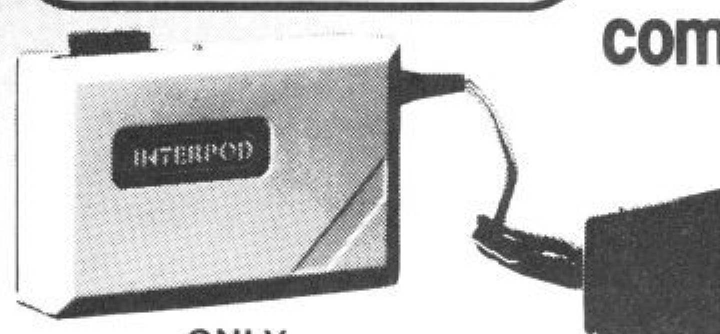
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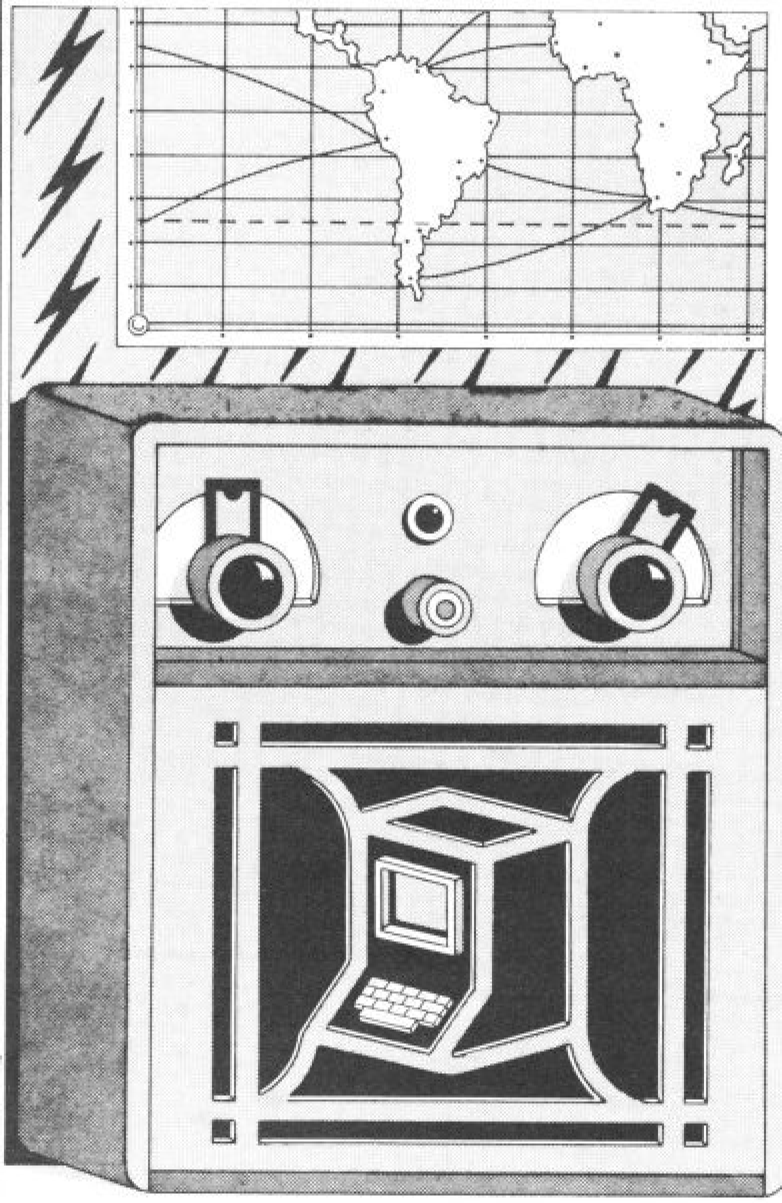
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MICRO-WAVE RADIO



Part 4 — introducing radio teletype

by Jim Grubbs

Now that we've reached the final part of our series, it's time to introduce radio teletype, or RTTY. What is it? How can you receive it? Simple, you build the interface and use the program provided. Too complicated for you? Don't worry, there's also a comprehensive list of product suppliers.

One of the most interesting special forms of communication available on the short wave bands is radio teletype. Although it takes several different forms these days including different codes and speeds, most radio amateurs still use traditional Baudot teletype code.

Many commercial stations particularly those in developing nations use the same standard. What it means for you is that there are numerous opportunities for listening if you have the proper equipment.

This month I've included a simple teletype program that works well on both the Commodore 64 and Vic-20. You already have an interface that will work for casual monitoring. That interface can be pressed into teletype service as well. If you are interested in transmitting, a relatively simple audio frequency shift keying circuit has been included. Don't worry, I'll also be listing some commercially available products.

It will help to understand a bit of the background surrounding radio teletype before diving into the program.

What is Teletype?

Teletype operation originally was designed for telephone line connections. Enterprising radio men wondered what would happen if the on-off keying from a teletype machine was applied to a morse transmitter. A tube type interface not very different in operation from the one you have built was used to convert the resulting tone coming from the speaker back into a 60 milliamp current loop to run the teleprinter.

The system suffered from static crashes and fading. By switching to a frequency shifted signal there was always a "carrier" present which helped to quiet the receiving equipment. This two frequency method is still used today. It is even the basis for regular computer modem communications.

Waiting for Baudot

Baudot code consists of five bits of data and a start and stop bit. With this arrangement it is only possible to send the alphabet and a single set of numerals and punctuation. Current users of data communication demand greater versatility. That's one reason ASCII code was created, which usually consists of a seven bit code. Commodore computers go this one better and use a special eight bit version of ASCII to enhance the graphic capability.

So you must do two things to make traditional teletype signals decode correctly on your Commodore micro. The first consideration is speed.

There are several standard rates at which computers communicate with each other and their own peripherals. Even relatively slow telephone data circuits communicate at 300 baud, or close to 300 words per minute. Baudot code as used on the amateur bands operates at 60 words per minute or 45.45 baud. That's quite slow, but the real problem is that most computers do not have this speed implemented because it is non-standard.

Commodore computers do have 50 and 75 baud implemented. Some transmissions occur at these speeds, 50 baud being 67 wpm and 75 being 100 wpm. Implementing 60 wpm takes a bit of magic. By doing some quick mathematics the values necessary to POKE into locations 665 and 666 can be calculated for this speed. For a complete description of these memory locations check the programmers reference guide.

The formula is included in the RTTY program listed here so that any speed can be implemented. All you have to know is the baud rate. **Lines 200** to **230** contain the necessary mathematics to calculate the POKE values.

Keep in mind that Baudot code is a five bit code, while the computer normally expects eight. But we can use the OPEN command in **line 150** to open the RS-232 for Baudot code.

That puts us on the right track but unfortunately the relationship between Baudot code and ASCII is not quite that simple. A "00001" in Baudot is an "E" while "01000001" in ASCII is an "A." If you throw out the high order bits that makes the code the same, so some interpretation is necessary.

By allowing your computer to continue to "think" in ASCII

you can fool it into properly printing what it receives. By indexing the received value into a conversion table the proper characters will appear on the screen or be transmitted from the keyboard. Just remember, the computer really doesn't care that you are receiving or transmitting Baudot . . . it continues to think and operate in ASCII.

The program explained

The *receive program* is located between **lines 55** and **85** with the *translation table* located in **lines 75** and **80**. The *transmit* portion of the program appears between **lines 235** and **315** with the necessary translations shown in **lines 240** and **245**.

Sometimes during reception the sending station will have shifted from the "figures" mode back to "letters" and this signal gets missed. By adding the unshift on space (USOS) feature, the program will automatically return to the letters mode everytime a space is encountered. This is good for normal text reception, but must be disabled when receiving large amounts of numeric information, such as weather stations.

The interface

As mentioned the interface you built to receive morse can be used to receive teletype signals. The only thing you do differently is connect the output of the interface to both pins B and C, data in and handshake lines.

Remember to keep the signal to noise ratio high and pick a good strong signal. Tuning is critical even with more complex interfaces.

With the receiver set up for morse reception select a bandwidth of about 3 kiloHertz or one of the single side band positions. Note that you will hear two tones. Tune through them slowly until you see proper decoding on your screen. It may be necessary to switch to the other "side" of the signal. Accomplish this by either switching the side band selector or moving the beat frequency oscillator from plus to minus.

The switch between receive and transmit is accomplished by hitting the F1 key. Construction of the transmit tone generator is straightforward and details are included on the schematic diagram.

You can exit the program and change speeds by pressing the "backarrow" key located on the keyboard. You can also change the status of the USOS option at the same time.

View from America

The Commodore micros are often called the "hams" computer here in the States. Indeed their popularity among amateur radio operators exceeds that of any other machine. But programmers have only started making use of the power available for radio applications. And the possibilities are exciting.

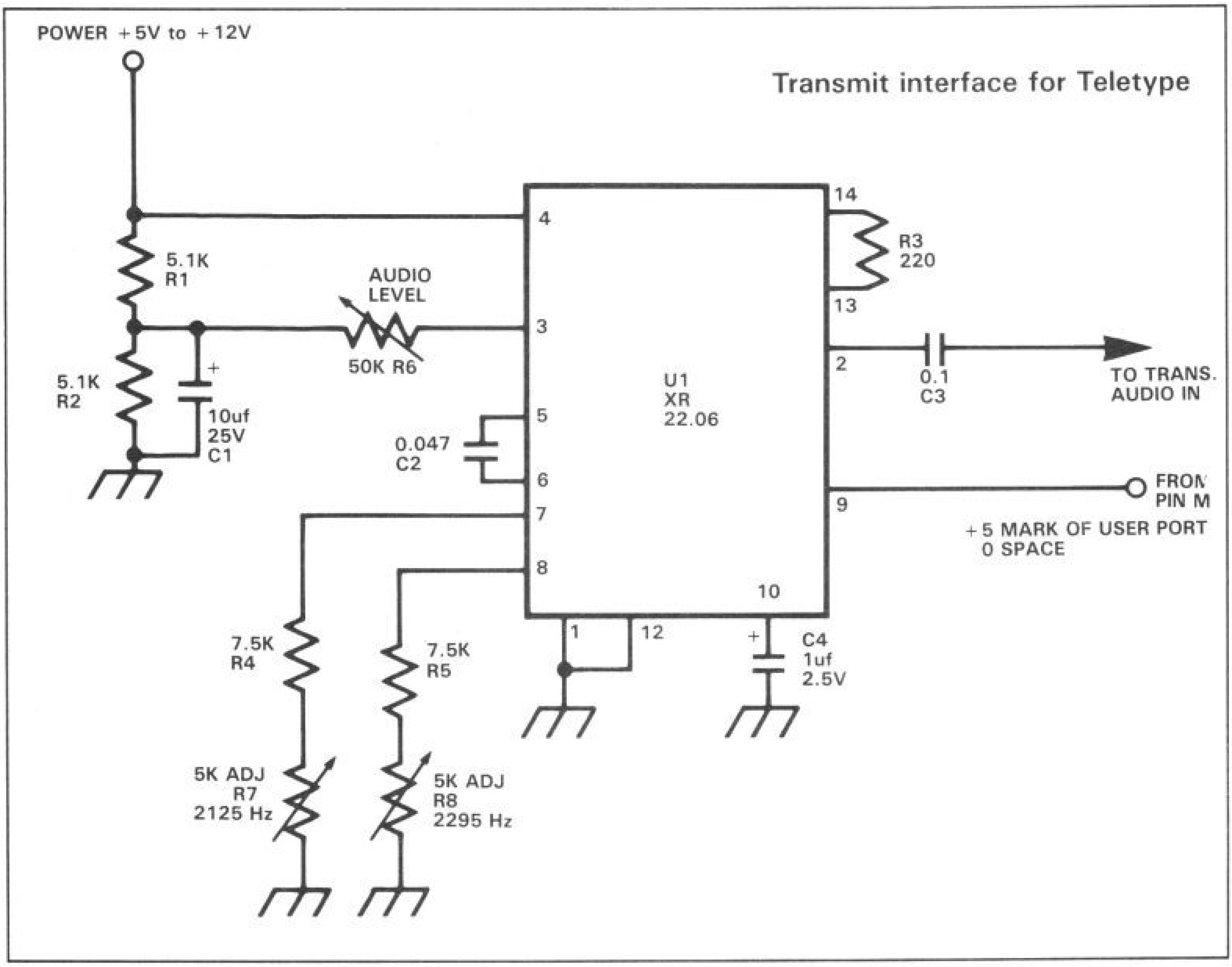
I'm just now reviewing a program that automatically tracks the OSCAR and Soviet RS satellites, and can connect to your antenna rotors to move them into position to properly follow the "birds" as they fly overhead. All of this can be done even with an unexpanded Vic-20!

Other programs exist for turning the Commodore-64 into a dual trace oscilloscope unit. There are so many possibilities for both relatively simple and very complex uses. I hope you'll let me know what your interests are. Why not drop me a line at P.O. Box 3042, Springfield, Illinois 62708, U.S.A.

Last words

For now it's 73 (best wishes) from the Grubbs Ham Shack. I hope you have enjoyed this introduction to amateur radio applications. Perhaps one day we will have the chance to chat on the air. It would certainly be my pleasure.

If you're not technically minded but would still like to try out some of the applications covered in this series, here's another list of suppliers for both software and interface units.



• **ICS Electronics**, P.O. Box 2, Arundel, West Sussex, has a combination unit of both software and interface, called the MP-64 (and MP-20 for the Vic), but no price available at print time.

• **Zero Electronics** at 149 Kingstreet, Great Yarmouth, has the Com-In 64 expansion board for around £100. It includes transmit/receive on morse, teletype, slow-scan television and several other features — some users have expressed difficulties with it.

• **Grosvenor Software**, 22 Grosvenor Road, Seaford, East Sussex has a professional quality RTTY transeiver program for both the Vic and 64 costing £10 for the Vic, and £14 for the 64 on tape — disk version also available.

• **MFJ Enterprises**, P.O. Box 494, Mississippi State, Mississippi 39762, U.S.A. have a low-cost interface similar to the one described in this series. It decodes both morse and RTTY signals, and costs around $69 U.S.

• **Kantronics** of 1202 East 23rd Street, Lawrence, Kansas 66044, U.S.A. is offering the Interface II, at $200 U.S. It also has a range of morse, teletype, ASCII and AMTOR software.

• **AEA**, at P.O. Box C2160, Lynnwood, Washington 98036-0918 U.S.A. is offering the CP-1 Computerpatch, perhaps the most popular device around at $175 U.S. (it's identical to the one offered by ICS above). Like Kantronics, AEA also has an extensive range of software.

Parts List

R1, R2--5.1 K ohm resistor
R3-----220 ohm resistor
R4, R5--7.5 K ohm resistor
R6-----50 K ohm single turn trim pot
R7, R8--5 K ohm 10 turn trim pot

C1-----10uf 25v tantalum capacitor
C2-----0.047uf Mylar capacitor
C3-----0.1uf 50 volt disc capacitor
C4-----1uf 25 volt tantalum capacitor

U1-----XR-2206 Exar integrated circuit

One final word: before you can start transmitting, you must hold a valid radio operator's licence. To transmit without one constitutes an offence.

```
50 GOTO 150
55 POKE 665,R:POKE 666,Q
60 LS=-1
65 LF$=CHR$(10)
70 CR$=CHR$(13)
75 L$="E"+LF$+"A SIU"+CR$+"DRJNFCKTZLWHYPQOBG*MXV*"
80 F$="3"+LF$+"- '87"+CR$+"$4',!:(5')2£60197&*./;*"
85 GET£2,C$:IF C$="" THEN 120
90 C=ASC(C$):IF C<1 OR C>31 THEN 85
95 IF LS THEN C$=MID$(L$,C,1)
100 IF NOT LS THEN C$=MID$(F$,C,1)
105 IF US$="Y" AND C$=" " THEN LS=-1:REM USOS
110 IF C$<>"*" THEN PRINT C$;:GOTO125
115 LS=(C=31)
120 GET A$:IF A$="" THEN 85
125 IF A$="L" THEN LS=-1
130 IF A$="_" THEN CLOSE 2:GOTO 150
135 IF A$="F" THEN LS=0
140 IF A$=CHR$(133) THEN GOTO 235
145 GOTO 85
150 OPEN 2,2,0,CHR$(96+1)+CHR$(0)
155 US$="Y":PRINT "[CLS][2CD]USOS (Y/N)"
160 INPUT US$
165 BR=60:PRINT "[CLS][2CD]WHAT SPEED":PRINT "(60,67,75,100 WPM)"
170 INPUT BR
175 GOSUB 200
180 PRINT "[CLS] RADIO POST RTTY RX":PRINT STR$(BR)+" WPM"
185 IF US$="Y" THEN PRINT "[HOM][2CD] USOS ON"
190 PRINT
195 GOTO 55
200 D=1.023E6
205 IF BR=60 THEN B=45.45
210 IF BR=67 THEN B=50
215 IF BR=75 THEN B=56.92
220 IF BR=100 THEN B=75
225 X=INT(D/B+.5):Q=INT(X/256):R=256*(X/256-Q)
230 RETURN
235 PRINT"[CLS][REV] RADIO POST RTTY TX "
240 L1$="CYNIAMZTFKOR\LXVWJEPG^SJUQ"
245 F1$="MDTIDZQORDDLC\JVWSAJPUGFXN^DDDYD"
250 GET X$:IF X$=""THEN GOTO 250
255 IF X$=CHR$(34)THEN X$=CHR$(39)
260 IF X$=CHR$(133) THEN GOTO 180
265 PRINT X$;
270 IF X$=CHR$(13) THEN PRINT£2,"H";:GOTO 250
275 IF X$=CHR$(10)THEN PRINT£2,"B";:GOTO 250
280 IF X$=CHR$(32)THEN  PRINT£2,"D";:GOTO 250
285 X=ASC(X$)
290 IF X<33 THEN GOTO 250
295 IF X<65 THEN X=X-32:X$=CHR$(91)+MID$(F1$,X,1):PRINT£2,
    X$+CHR$(95);:GOTO 250
300 IF X>95 THEN GOTO 250
305 X=X-64:X$=MID$(L1$,X,1)
310 PRINT£2,X$;
315 GOTO 250
```

MICRO CHIT-CHAT

Anirog's Voicemaster reviewed

Science fiction is riddled with talking computers. The most famous, HAL in '2001 — a Space Odyssey', not only bad-mouths his master but manages to banish him to hyper-space. Now you can talk to your 64, with Anirog's Voicemaster, a device that recognises speech and synthesises sound — in the safety of your armchair.

by Stephen Howard

There's no shortage of speech synthesiser packages for the Commodore 64 and there's a variety of different ways in which they work.

SAM or 'Software Automatic Mouth', for example, is an American software-based system which 'manufactures' speech from 64 different sounds or 'allophones'. *Speech 64* from the now insolvent Currah Computors offered a similar approach, only using a special chip on a cartridge. But these allophone based systems are difficult to program if realistic pronounciation and pitch is to be obtained from the keyboard input.

Before now, only one speech recognition unit was available for the 64, manufactured by a small company called William Stuart Systems. The *Big Ears* unit was too slow to be of any practical use, and was never advertised for the 64 other than in specialist electronics magazines.

All this is about to change with the introduction of *Voicemaster*, an American combined speech synthesis and voice recognition unit. It's being distributed in Britain by Anirog and costs a whopping £59.95. For the money you get a speech synthesiser, a word recognition system and a facility for composing and performing music in real time.

A complete package

The unit consists of a small aluminium box, which plugs into the rear joystick port via its integral lead. Supplied with the unit is a headset, which has one earphone (of the personal stereo variety), and attached to this a 'boom' microphone that can be positioned, via a swivel joint, in front of your mouth — just like a helicopter pilot. Also supplied with the unit are two leads, used for routing sound and speech from the computer to the earphone, via the Voicemaster main unit.

The first of the two leads connects to the computer with a DIN plug, which fits into the audio/video port. This lead is used when your television is hooked up to the computer, and it has the advantage that sound can also be heard through the television — you can turn the sound down and use just the earphone if you wish.

The second lead is for use with a video monitor. Since all monitors plug into the audio/video port, the second lead takes its sound from the plug which would normally be connected to the monitor's 'audio in' connection. Unfortunately this means that sound is not available simultaneously through the monitor's own speaker. This is a major disadvantage, since the earphone is of very poor quality, being both tinny and very quiet.

Synthesise your voice

"Ghostbusters Ha! Ha! Ha!" was the cry that set the standard for computer speech. The same technique is used with the Voicemaster unit. Sound is first stored and then played back. This technique is called 'Digital Sampling' and involves sampling the sound millions of times a second, and then recording certain details of the sound each time.

These details can then be used to recompose a sound similar to the original, but with the advantage that it can be manipulated to sound different, or played on a keyboard.

In this way different pitches, tones, speeds, accents and even languages and non-human sounds can be stored, with the very minimum of effort. This technique has been used by synthesiser players for some time now, to create 'real' instruments on the keyboard.

Voicemaster uses its boom microphone as the sound source and stores the sound patterns in the computer's memory, in a highly condensed form. The sound can then be re-composed and played through the internal SID chip.

Stand by, recording

To record sound or speech you simply type LEARN, followed by a number between 1 and 64 which refers to the word or phrase, so that it can be identified for play-back later. After pressing RETURN, the computer waits for you to say something, records as you speak, and stops recording when you stop speaking.

To play back the speech, you simply type SPEAK, followed by the same number you used when you recorded the speech. It's as simple as that.

Further Basic commands allow you to alter the number of samples of sound taken per second. The higher the RATE, the better the speech, but at the cost of using more memory. Other commands are SPEED and VOLUME, which can be used to give you echoes and Smurf-like effects.

The Voicemaster gives very good quality sound, certainly up to the standard of *Ghostbusters* or *Impossible Mission*. The speech does suffer from some interference, a hiss similar to that found on CB radios and walkie-talkies. I think a better microphone would help overcome this problem to some extent, and one could be easily connected to the standard socket.

Speech Recognition

This is probably the most exciting part of the package. It uses a similar technique to the speech synthesis facility. First you have to record the words to be recognised into memory using the TRAIN command. During the recording you are prompted by a question mark in the bottom right-hand corner of the screen.

Words to be recognised are arranged in groups of eight, to enable you to adopt a menu driven approach. The fewer number of words in each menu, the higher the success rate. The RECOG command, followed by the number or numbers of the sets of eight to be tested, starts the recognition

The complete Voicemaster kit: the device, headset, manuals, software and assorted cables



procedure. A question mark is again used as a prompt, and it again changes as you speak.

After recognition is complete (when you've stopped talking) the computer takes less than a second to work out which word you have said and a simple peek allows you to find which word was spoken.

There are other more advanced commands — including TPUT and TFIND which let you load and save voice recognition data to tape or disk. You could build up quite a speech library.

Generally speech recognition is very accurate when used in quiet surroundings. But the computer does sometimes give completely wrong results, when it's in a slightly noisy environment — even more expensive systems suffer from that problem.

Voice Harp

The third part of the package is a set of three separate programs. The novel idea here is that you can hum, sing or whistle into the microphone and the computer will either hum along with you or write the tune in musical notation.

The first of these programs is called '*Hum-Along*' and it lets the computer play along with your voice in any one of eight preset sounds, or you can make your own sounds up and then load or save them to tape or disk. Other options include a filter for whistling as opposed to humming or singing, and another filter for people with deep voices.

But there's a problem in using the 'Hum-Along' program. You'll probably want to turn the volume of the television up so that you can hear the computer above your own voice, having already given up with the earphone. This causes the microphone to pick up the television sound, which will cause feedback.

Unfortunately the two other programs explained in the manual did not even exist on my disk, these being a song writer and a score printer. These would have enabled me to record my humming masterpiece in musical notation, and then edit it and print it out on my printer. That's probably because I was using an early sample.

Overall, the Voice Harp function seems useful, but too slow to be used for writing songs without a lot of editing later. This would be alright for those who understand music theory and all the notation that goes with it, but the whole idea of the program is to enable people with little musical knowledge to write songs.

Manuals and demos

The unit is supplied with two American manuals which were very disappointing. With a complex and quite expensive unit such as this I expected more than 44 A5 size pages, printed on poor-quality paper. The print quality is poor too, and it is obvious that the manuals will not stand up to repeated reading and checking by the user. There is no order in the presentation, and no diagrams or index.

A number of demonstration programs are also supplied, most of which are in Basic, and so can be listed or modified. These programs include a talking calculator and a speaking clock, and also an excellent program that shows the volume and frequency of sound as a graph in real time.

Conclusions

Voicemaster is definitely worth the price of £59.95 (both tape and disk versions), but for a little extra cost on Anirog's part they could have had a much clearer and better manufactured manual which would have improved things no end. Other than that the unit is great and there are many possibilities open for it. Anirog plans a whole range of software to be available separately.

Voicemaster should appeal to anyone from budding Ghostbusters, to people wishing to experiment with the latest in 64 technology — provided you can spare the money.

- **Voicemaster**
- **Anirog Ltd**
- **Unit 10, Victoria Industrial Park, Victoria Road, Dartford, Kent Tel: 0322 92513**
- **£59.95**
- **well worth the price**

Hot Shots!

Welcome to Hot Shots, my name's Mike, I'm the bloke in the picture. Each month I'll be bringing you pages of hints and tips, news, maps and previews. I also want to hear from you. You're the people who go out and spend money and time on the games we write about. If you've drawn a map, got a tip or you want to moan about a rip-off I want to hear from you. This month we kick-off with a map of Elite's tortuously hard and much underrated Airwolf on pages 34 and 35. It comes complete with advice and comments from the programmer himself, Neil A. Bate. If you haven't got the game there's a chance to win it and a whole host of other Elite goodies as well. First of all though some gossip . . .



Mike Pattenden: copies on request

This is the column that shoots first and asks questions later. Each month I'll be bringing you the hottest gossip from the software world. If you want to know who's gone where and who's slagging who, read on . . .

And I'm taking you straight over to London's plush Dorchester Hotel for the highlights of the presentation of a trophy Addictive Games have awarded themselves for the sales of their soccer strategy game **Football Manager**. It has reportedly sold over 100,000 copies — the equivalent of nearly two Manchester United home gates.

There to present the trophy was **Lawrie McMenemy**, hoping perhaps he could learn a few things from the game, because it's the only trophy he'll lift this season.

It was, of course, a game of two halves though Lawrie (not drinking Barbican, I noticed) was none too pleased to find himself in the fourth division. Things went from bad to worse and after losing heavily to Mansfield and Rotherham and going out of the Cup he was looking sick as a parrot.

His immediate response was to ask whether he could get sacked. Yes he could, said the grinning **Kevin Toms**, a Torquay supporter. Lawrie's immediate response was to start axing players left, right and centre. First to go, I noticed, was Steve Williams who had mysteriously appeared on the team sheet. Charlie Nicholas soon joined him on the sidelines.

In fact at the end of the day the best team won (and it wasn't S'thampton) which is why, no doubt, Lawrie acknowledged in his presentation speech that he hadn't been first choice.

They'd originally wanted Tommy Docherty, he confided, but "they didn't know which club to phone". Ron Atkinson was the other choice, but he had a hairdressing appointment, we discovered.

Well it's back to the studio. Thanks Brian and we've got another live report for you from Hewson Consultants, where spring is in the air with the launch of **Gribbly's Day Out**, reviewed a couple of months back.

Kevin Toms receives the trophy from a jealous Lawrie McMenemy



The version we looked at was a pre-release, and I'm glad to say the final offering is even better than we told you it was. There are 16 screens through which Gribbly hops in pursuit of little Griblets. His expression is very mobile and his breath is as bad as we first predicted . . .

Andrew Braybrook, the game's programmer, is definitely worth keeping an eye on in the future. This is his first original program for the 64; before that, he was working on conversions.

I asked him what his views were on the big names. He didn't seem that impressed by what was on offer. Jeff Minter? "He's in a bit of a rut. I like his trait for personalising games but they've got a bit samey. Too hairy." The last comment was reserved for the characters in the games, not the man himself, I think.

Tony Crowther? "He's OK, a bit simplistic. I read somewhere, though, he thinks if you get four or five hours enjoyment out of a game that's value for money. It's not good enough."

Sticking to his words, *Gribbly's Day Out* sells at £7.95, not £9.95 as we were originally told. Andrew's next game is still at the storyboard stage, but it'll be a technorobot thing, with you on a starship performing different tasks with different kinds of robots. Stay tuned . . .

Whilst we're talking programmers, ex-Taskset man **Tony Gibson** has a rather poor opinion of his former boss, Andy Walker. Take a look at the name he's given to one of the nasties in *Ghettoblaster*. I can't tell you what he intended to call his game in our supplement, but I'll leave it to your imagination . . .

With so many stars and personalities lending their names to computer games, **Commodore User** can reveal exclusively that Britain's most famous actress will not be appearing in pixels.

A well-known Australian software house had a £10,000 offer for the rights of *Dynasty* turned down by the programme's American owners. **Joan Collins**, the star in question, plays the devious Alexis Colby — arch rival of millionaire Blake Carrington.



Dynasty's rival in the TV ratings, *Dallas*, was made into a computer game by the American firm Datasoft. The game was not an enormous success — which may explain why no other American software house has successfully acquired the rights to Dynasty.

Joan is reputed to earn £300,000 per episode for Dynasty, and can command several times this for an actual film part so it's not surprising that the offer for an adventure game should seem like small fry.

With the Dynasty name now appearing on just about everything from dolls to lingerie it must surely only be a matter of time until some software house puts together an attractive enough deal to get Dynasty.

If you've got something to say, write to Mike's Hot Shots, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.


2 HITS ARE BETTER THAN 1
Now by public demand the screen-scorching Falcon Patrol II is available on the Spectrum 48K as well as the CBM 64.
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THERE'S NOTHING FOR IT – YOU MUST KEEP COOL AND STAY ON TOP!
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DEVIOUS CHOPPER ATTACKS
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HOT SHOTS!

AIR

This month's Hot Shots brings you the first ever map of Neil A. Bate's superb but formidable Airwolf, with advice on how to complete it from the programmer himself. The game is divided into five sectors, each containing a man. Rather than print five identical maps cluttered with arrows we've decided to provide detailed text that refers to specified positions throughout.

You must remember to destroy wall **(C)** *every time you begin a new*



PICTURE II: Shoot down the wall above the dropping boulders (Q) and the pin directly behind it. Do not try and rescue your man, but return down to the bottom and clear the laser line. Then shoot pin (R) and return back up to the top. Your way is now clear to rescue your man.



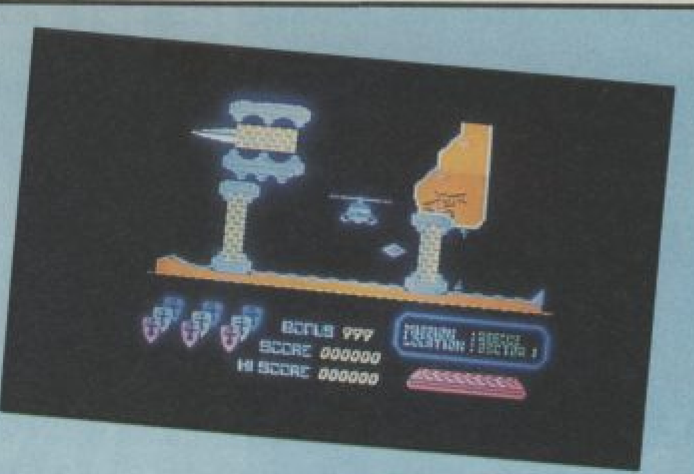


PICTURE I: Shoot pin (P) and then (O). The planet blocking your route will now begin to fall. Destroy it before it hits the bottom, because it will activate a destruct button. Your way is now clear.

1 Sector one is the easiest challenge of the lot. You come out of the base and fly left avoiding the boulders and drop down funnel **(B)**. Rescue your man. You cannot return the way you came, remember. To get back you must shoot pillar wall **(E)** and fly out. Don't get in the lift, but follow it up. Turn right and shoot down wall **(D)**. Fly through past the Seekers and back to base. Did you remember to shoot wall **(C)** down at the start? This is your route back to base after every rescue. Whatever sector you have come through you must return via walls **(D)** and **(C)**.

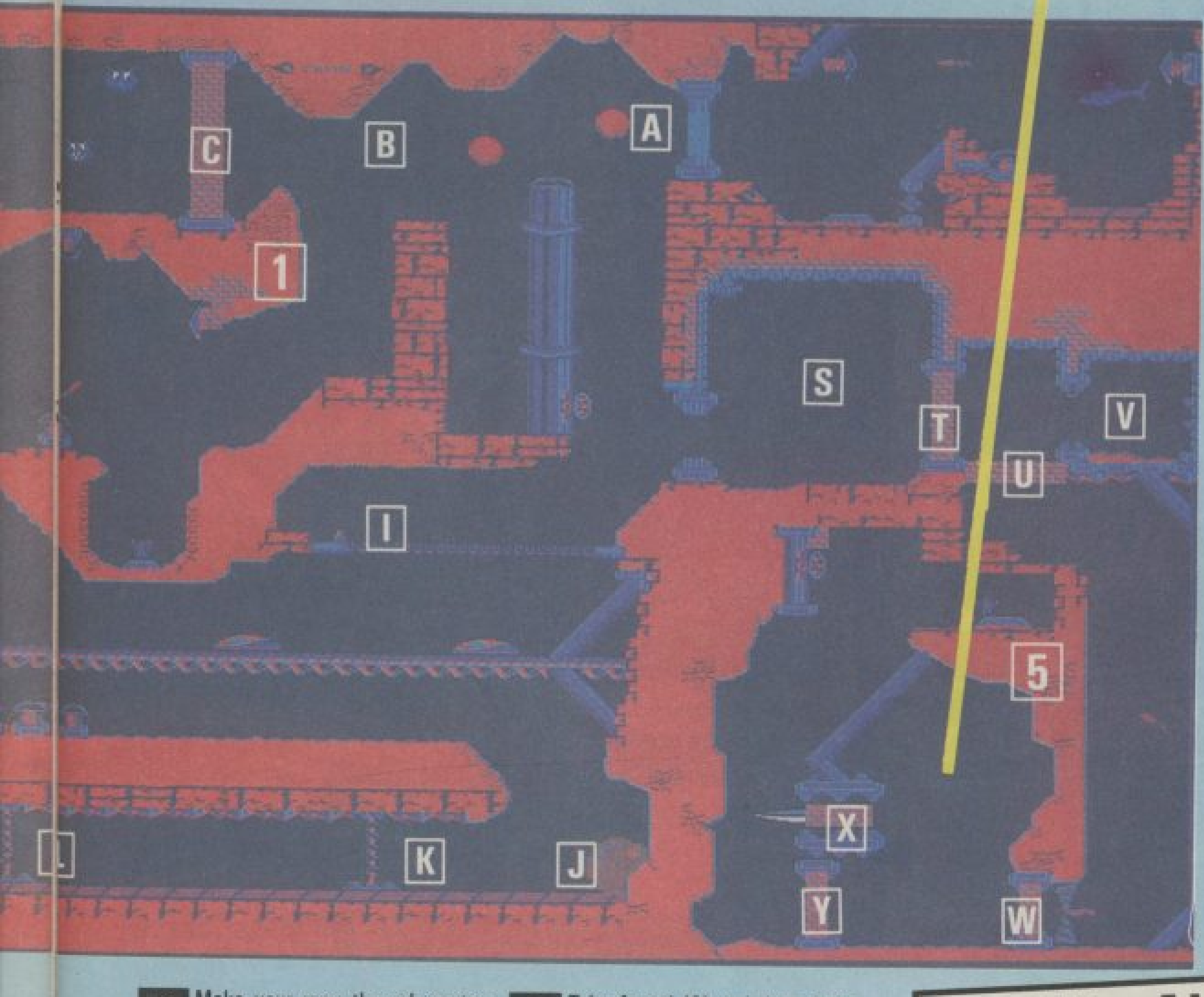
"Looking back on it, the game is a bit difficult, p

RWOLF



mission, otherwise you won't be able to return past the Seekers. This is not pointed out in each description. If and when you have rescued five men, and believe me you'll still need all your skill, sectors are combined e.g. 1+2, 2+3, etc. No-one, not even Neil or anyone at Elite, has completed all five sectors combined. So get cracking! Neil Bate is working on a boxing game at the moment, more information on that over the page.

PICTURE III: Wait until the floating diamond disappears off the screen. Shoot the big spike (X) and this will hammer itself into the wall. Fly back down to wall (Y) and through. Your way is now clear.



4 Things get tough now. Take tunnel (**B**) and fly through sector one. Shoot through walls (**E**) and (**N**). Drop down into the large caverns. Two godheads either side shoot fire bolts from their eyes. Avoid these. Shoot the two buttons at the bottom. (Refer to picture I for detailed information here.) Fly vertically up until you reach the top where a conveyor belt is dropping boulders (**Q**). (Refer to picture II here for further important information.) You are now clear to make your rescue and return via the Seekers.

5 Fly down tunnel (**A**) and into cave (**S**). Immobilise flying saucer and shoot down walls (**T**) and (**U**). Do not proceed until you have shut yourself in by shooting (**V**). This reverses the firebolts and allows you to travel vertically down. At the bottom shoot down wall (**W**) whilst avoiding the sparks. The next bit is a toughie, refer immediately to picture III. After firing in the spike, shoot away wall (**Y**) and make your way up to rescue your man. You have only just begun, now start doing the combined sectors!

2 Make your way through sector (1) as before. Shoot down wall (E) and follow lift up. Turn left and drop down. Your scientist is directly beneath you. You cannot pick him up because he is standing on water. To make him rise up shoot valve (G). The door at the top right will now automatically close. To reopen and make your escape with the man, you must shoot bolt (H). Remember you must make your way back via the Seekers, through walls (D) and (C). Seekers sap your shields so avoid them as you make your way through.

3 Take funnel (A) and drop down to the laser line. Shoot pin (I) to make it disappear. Hover over the monorail and shoot a hole through. Drop through, squeezing past boulder (J). You must now fly left as rapidly as possible shooting pins (K), (L) and (M). The final one will open up the trap door and the boulder you have activated will fall in. Hug that pillar on the left until it has gone. Then fly back to pin (J) where the boulder once was. Shoot it and your way is clear to rescue your man. Return as advised previously.

Win Airwolf Goodies!

If you've just read the map you might think it's all too easy now. Well, you'd be wrong and to find out you'll need the game itself! Elite, in conjunction with *Commodore User*, are giving away 30 free copies of *Airwolf*, plus 30 glossy 5'×4' Airwolf posters and 30 digital Airwolf watches! The watches alone are worth £12.00 each!

All you have to do is tell us who flies Airwolf in the TV series — the character not the actor — and provide us with a useful hint or tip on your favourite computer game. Send your entries to Hot Shots Competition, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU. Entries to reach us no later than 25 June.

Airwolf's pilot is...

My tip for a computer game is...

....(use more paper if necessary.)

....

Name:...

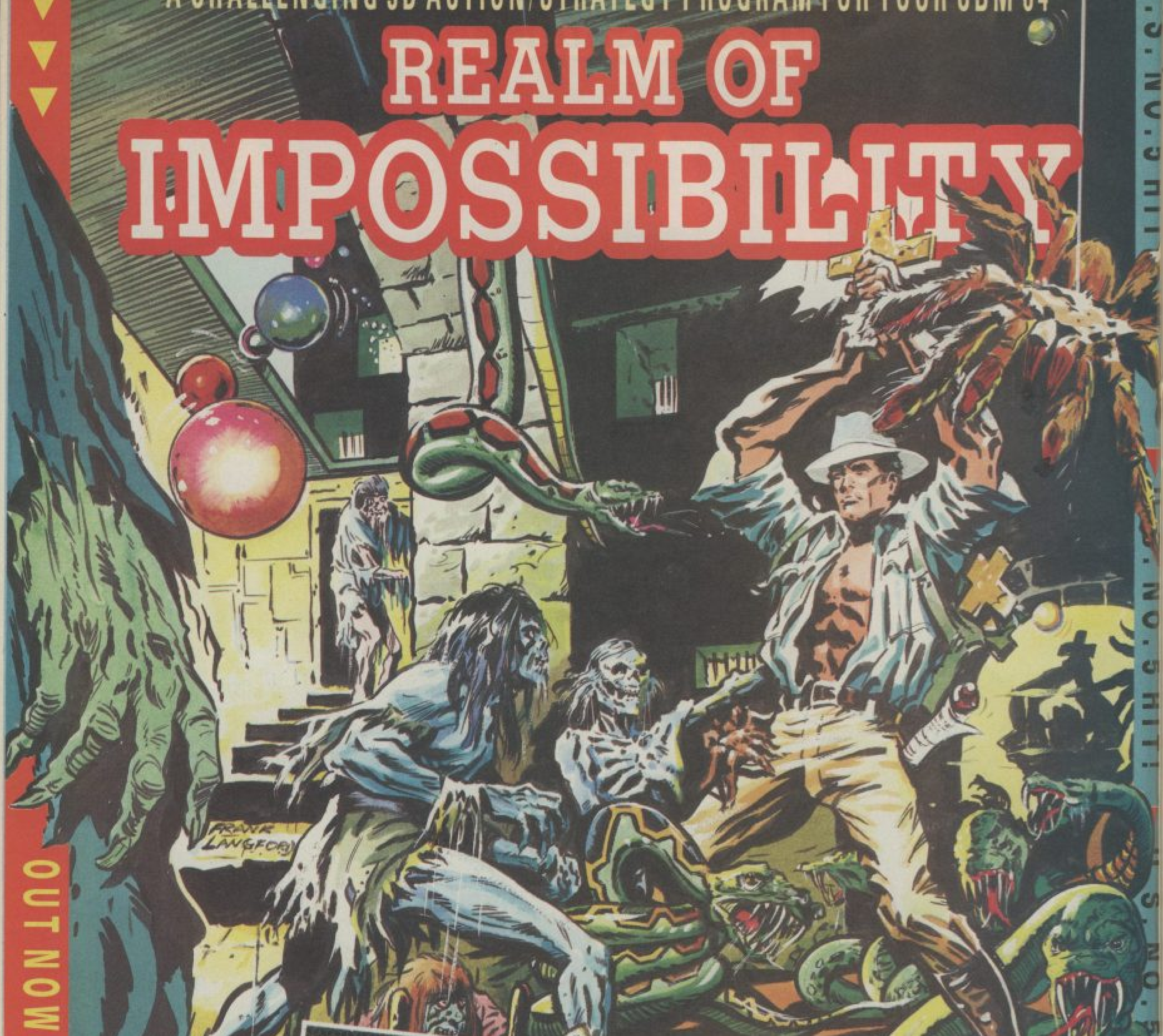
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icul, perhaps a bit too difficult.'' Neil Bate, programmer.

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OBJECTIVE

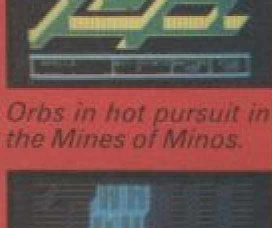
The evil cleric, Wistrik, has stolen the 7 crowns of the middle Kingdoms – He has hidden them all among his 13 Dungeon strongholds – YOUR TASK – enter the dungeons, find the crowns, and get out alive!

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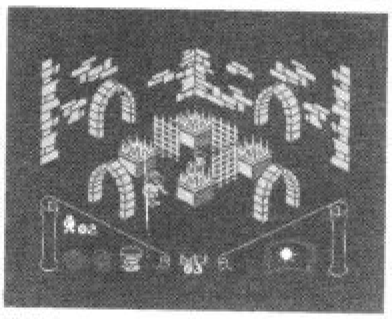
HIGH PERFORMANCE PROGRAMS

Hot Shots!



Louise Stamper of Ultimate collects the Golden Joystick Award for Game of the Year from a grinning Jools Holland. The winning game was the excellent Knight Lore, *not yet available on the 64. The awards were sponsored by our sister magazine Computer and Video Games. This year Commodore User readers are invited to vote for their favourite games as well — so get that pen and paper out and let us know which games you think are the best. See next month's Hot Shots for your official Golden Joysticks voting form. When will* Knight Lore *be out on the 64? — see below.*

CONVERSIONS



Knight Lore *for 64?*

The smash hit Spectrum games *Sabre Wulf*, and *Sabre Man* are to be converted for the 64.

The British Telecom software house, Firebird, shelled-out a reputed £10,000 each for the first two titles in the Sabre series, which forms a trilogy of games. Each one topped the game charts on its release.

A question mark hangs over the third — and best game in the series — *Knight Lore* winner of the Golden Joystick Award for best Game of the Year.

Firebird do not have the rights to *Knight Lore* and it is thought that the authors of the game — Ultimate Play the Game — may wish to bring this title out themselves. A spokesperson from Ultimate refused to comment on the Firebird deal.

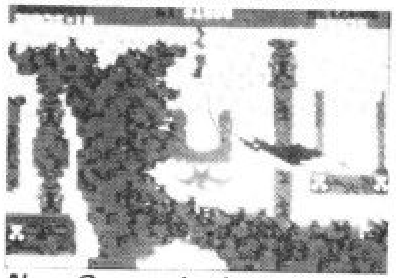
Another top Spectrum game recently announced for a 64 conversion is the highly acclaimed *Skool Daze* by Microsphere.

The Sabre games will not go on sale until the Autumn and *Skool Daze* in July.

PREVIEWS

Neil Bate's new game for Elite is Frank Bruno's Boxing, *a sports simulation for pugilists.*

It'll be released in July shortly after its eponymous hero fights for the European Heavyweight Championship. The game, claims Elite, will "allow players to experience for themselves the tensions, skills and excitement of the game". We'll be reviewing it next month and going a few rounds with their claims.



New Generation's next game for the 64 will be an arcade game called Amazon Warrior, *an arcade-cum-adventure.*

The basic idea seems to be that you have to escape from the jungle without being killed. It seems there are three totally different scenarios, the Amazon Forest, Crystal Caverns and the Ruined Temple. The screen shot comes from the last of these. It features smooth scrolling 3-D graphics and sound effects, which they claim are partly interactive. Sounds novel.

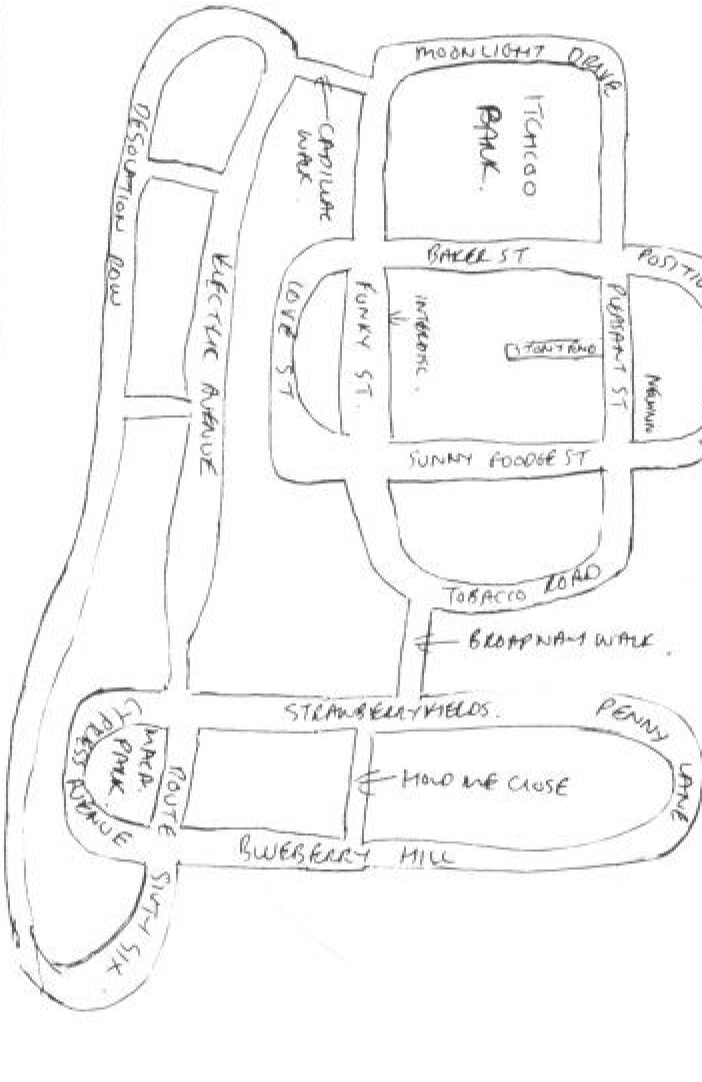
The music ought to be a bit good as well because the game is programmed by Geoff Sumner who went to the Royal Academy of Music. It'll be selling for £7.95 at the end of June. We'll be putting it to the test as soon as we get it.

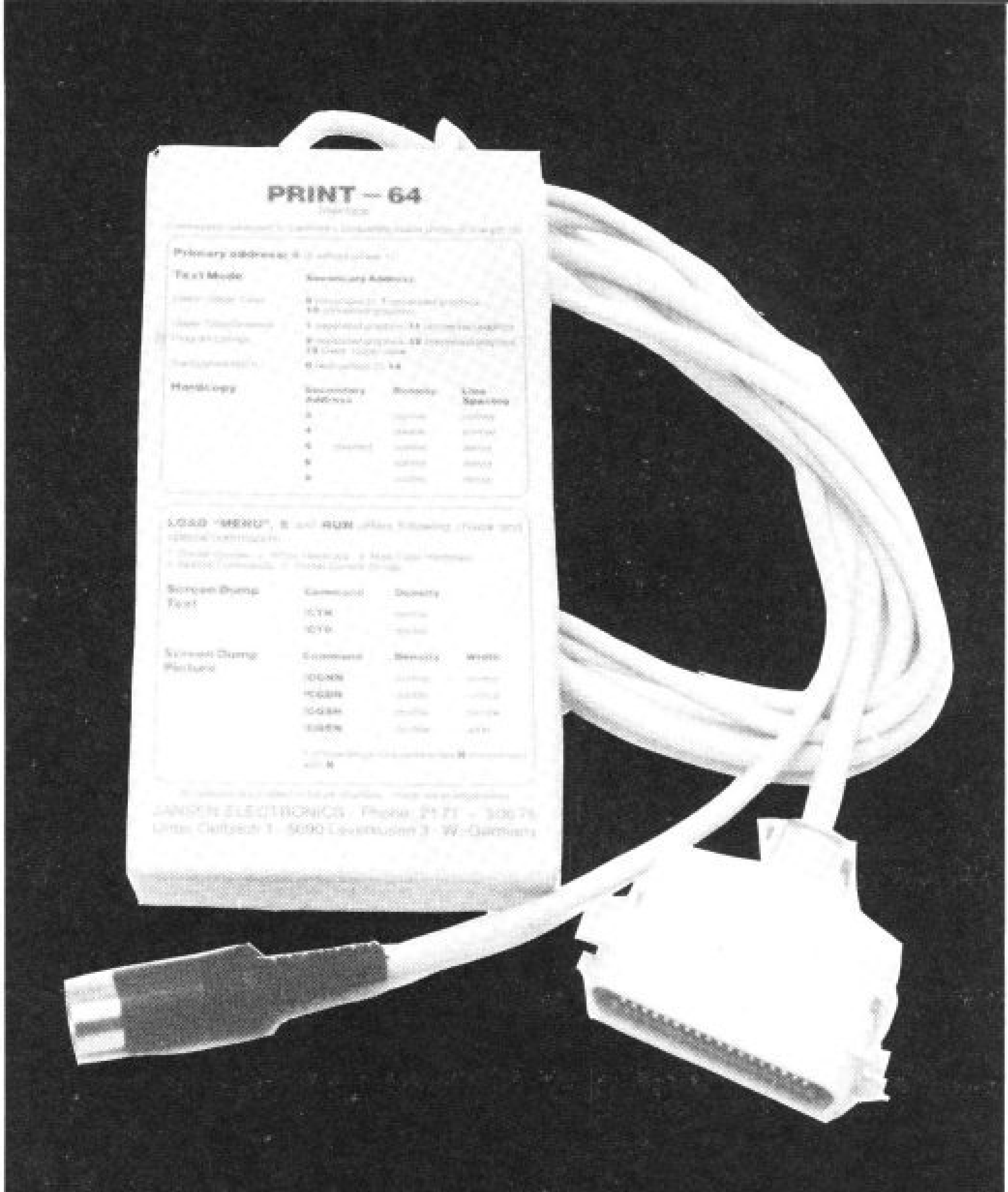
GET AROUND FUNKYTOWN

Finding your way around Funkytown is no easy piece of gaming.

The town with the musical sounding name is the scene of Tony Gibson and Mark Harrison's latest game — Ghettoblaster.

Gibbo thought it might be a little bit difficult for you to find your way around Funkytown so he has drawn you this map with his own fair hands. The first ever map of a computer game drawn by the programmer himself! Another great scoop for Hot Shots.





Print-64 allows you to print colour screens in 16 shades of grey

DELUXE PRINT

Top of the range printer interfaces

How do you choose a printer interface for your Commodore 64? Last month we looked at the cheap 'n basic models. This month, it's straight to the top of the range. These devices do virtually everything — but will they bust your pocket?

Commodore printers are usually knocked for being slow, not offering enough facilities and being a little over-priced. But they can't be beaten for no-fuss printing. Just plug them in and go. Print what you like, from Commodore's unique graphic and control characters to a hi-res screen dump.

Try doing that with a non-Commodore printer and you're in trouble. That's where the all-purpose interface comes in: it will let you do just about all these things — at a price. But one word of warning before we plug them in: although these devices open up a huge range of printers, you must decide what you want the printer to do and then satisfy yourself that the interface can offer all those facilities before you buy. In short, get a dealer demonstration.

THE PRINT-64 INTERFACE

Print-64 is a nicely packaged hardware 'Serial IEEE to Centronics' interface from German company Jansen Electronics, and costs £76.95. It has just two leads; one plugs into the serial port on either the computer or the disk drive and the other plugs into the printer. The interface gets its power from the printer — or should do, but therein lies one of the problems.

Only certain printers, such as the Star Gemini series, have the necessary 5 volt power supply on pin 18 of the Centronics socket; many printers, such as the Epson, do not. The 'manual' suggests, not very helpfully, that you find a suitable 5 volt supply inside your printer and connect it to pin 18.

While this works, it's not really practical and could be dangerous. Who wants to risk their printer's guarantee by soldering wires inside the printer before they have used it even once? A separate lead for those printers without the necessary power supply would have been much more sensible.

Print facilities

That criticism aside, the interface is very sophisticated; it can print all types of graphics, do program listings with all the necessary Commodore characters, screen dumps and normal 'straight-through' printing for use with word-processors. All this means that the manual needs to be fairly comprehensive.

However, the 'manual' is a disk; fine if you have a disk drive, disastrous if you don't. There are a number of demonstration programs on the disk as well as the instructions, which are useful in showing what the interface can do, but why assume everyone has a disk drive? It also means that if you are running a program and want to look up a printer command, you can't.

Print colour pictures

But the most exciting feature of Print-64 are those disk routines. There are programs to download both black and white and colour graphics pictures onto the printer. Colour? Yes, because the colour graphics dump shades each colour differently by varying the dot density, and the results are quite excellent.

The machine-code routines can be located anywhere suitable in memory and run in conjunction with your own programs. They can also pick up a picture file from disk from some of the popular graphics tablets, Koala Pad for example, and print those as well. For some people, the disk routines will more than justify the cost of the interface.

Conclusions

This is an excellent interface *if* you have a printer with a 5 volt supply on pin 18 and *if* you have a disk drive, otherwise you either risk your printer warranty or cast envious glances at those neighbours with disk drives. For those people who want outstanding hi-res screen dumps there really is nothing to touch it. Get saving!

Chris Durham

THE MICROGRAFIX INTERFACE

The **Micrografix 'Graphic'** interface is imported from America and distributed in the UK by Impex Software Limited. It's a little more expensive at £89.95. The clever bits are housed in a sleek black box with generous lengths of cable.

In use, it's almost identical to Print-64 in that it plugs into the 64's serial port. But there are some important exceptions. There is a separate power lead which plugs into one of the 64's games ports for the 5 volt power supply, and there is a very comprehensive manual.

The power lead is designed for use with those printers that do not have 5 volts on pin 18. Thus some users will only need two cables connected while others will need all three. The use of the games port is quite logical since there are two of them on the 64, so you can still play most joystick games as well. By the way, the device also works with the Vic.

Fancy ways to print

Like Print-64, the Micrografix device can do all sorts of fancy things like printing Commodore graphics, in expanding the 'control' characters to meaningful strings in program listings. It can also print graphic characters as the keys needed to obtain them for example (sZ) means SHIFT Z, which gives a diamond. This is often easier to read than the graphics characters themselves, especially the 'bar' characters which can be easily confused.

Sadly, there is no hi-res screen dump facility, although the manual does include a Basic listing for dumping a text screen. This does not mean that the interface cannot be used for hi-res graphics, just that you will have to write your own 'driver' routine to do it.

Like many of the sophisticated interfaces, Micrografix can operate in a number of different modes. Unlike many others, the modes can be altered by means of the six small switches on the drive itself as well as by software, even while the interface is powered up. There is a 'reset' button which actions the change. That's pretty useful if the program you are running is unable to pass control characters to either the printer or the interface.

Micrografix will also work with other interfaces such as Interpod (many printer interfaces, including Print-64, just lock up if used on the same system as Interpod), an added advantage if you already have such a device.

Conclusions

Micrografix is a very clever, very adaptable Centronics interface, useable with virtually any type of printer. The extra power lead and the comprehensive manual give it the edge over Print-64 as far as general compatibility is concerned and, despite the cost, it gives value for money. It will appeal to those who are not too worried about hi-res screen dumps, but nevertheless want the best and are prepared to pay for it.

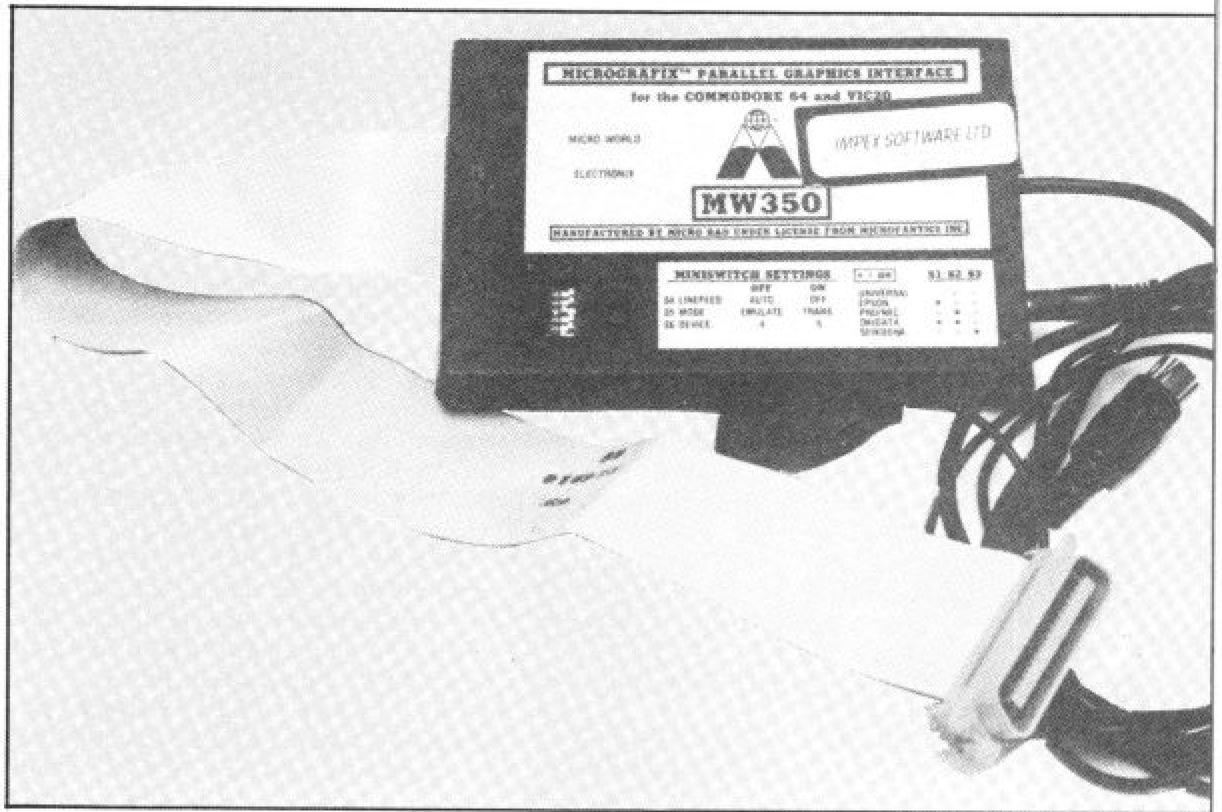
Chris Durham

THE GRAPPLER INTERFACE

Finally, let's look at Grappler, the most expensive interface on our list, at £109. Again, it's an American device distributed in the UK by Pete and Pam Micro Distributors.

Physically, the Grappler is fairly large, about the same size as the Commodore modem. A robustly made plastic box with a clear cover houses the clever electronics, it is actually riveted together in places, indicating the strength of construction. The internal circuitry, for those of you who are interested in such things is based on a 6501 processor.

Unlike the previous two devices, power connection to the Grappler is made through the 64's expansion port. But provision has wisely been made for additional cards to be piggybacked onto



Micrografix comes complete with lead for its own power supply

the Grappler, since it has it's own expansion port. Two leads emerge from the unit; a very generous length of printer cable, terminating in a Centronics connector, and a short length of Commodore serial cable. The serial lead plugs directly into the serial socket of your 64 and if you have a 1541 disk drive, it's lead then plugs into a serial socket on the side of the Grappler, connect the printer cable and that is all there is to it.

Selecting different makes of printer is done by means of DIL switches accessible from the side, so changing printer type is very easy. Other than some really obscure makes of printer, Grappler appears to have the market well covered, and if your particular printer is not mentioned, then experimenting with the settings of the three switches should prove successful. Again, check this point, before you commit yourself to buying. ▶



Grappler CD — funny name but not-so-funny price

DELUXE PRINT

Grappler modes

There are four modes of operation with Grappler, and the provision of high-resolution or block graphics (text), screen dumping in all modes. However, the selection of screen dumping does cost the user some 8K of memory as the Grappler ROM then comes into effect. For the benefit of machine code programers it is situated at $8000 to $8FFF, nicely out of the way. The hi-resolution screen dump is loaded into $2000 to $3F3F. Note, that this function is only operable using a disk drive.

Let's look at the four modes more closely. Emulation mode fools your 64 into thinking that the attached printer is a Commodore 1525. This allows printing of the unique Commodore graphic symbols as well as using the standard Commodore printer commands.

Program Listing mode provides on-paper translation of the screen formatting graphic characters. For example, the heart symbol (obtained by pressing SHIFT/CLR HOME), is converted on the printer listing to the much more understandable CLR, similar to the Easy Enter system used in Commodore User. It does make life easier for both the user and the magazine or book publisher, because of the clarity of the instructions.

Text mode is mainly used for word processors. This passes Commodore control codes through unchanged, but alphanumeric ASCII codes are translated into standard printer codes.

Transparent mode is really self-explanatory. In this mode, nothing in the way of character code translation takes place. You can, under program control or direct mode, command the printer to start using different type styles, graphic characters, user defined graphic characters, in fact, use any of the printer's abilities. Obviously, all this depends on the faciliities offered by your printer.

This mode does represent a powerful option and this is the mode I use with Easyscript and my Epson RX80 F/T printer. Note that all of these modes can be selected by using the DIL switches *or* (with the exception of Text mode), from the keyboard, it couldn't be easier!

The manual supplied with the Grappler was a disappointment. There was no index and the whole tone was very light. Perhaps this is the way American users like their manuals, but I'm a believer in putting as much information in a handbook as possible. It shouln't be necessary for the user to spend time learning how to cope with their printer as well as coping with the interface.

Conclusions

Well, is the Grappler worth the current price of £109.00 + VAT? My answer is reflected in the fact that this is the interface I myself have bought. Grappler is a very powerful device, easy to get started with and has proven to be trouble free in the last six months. It is American in origin, which accounts for the price, but do not let that put you off looking. My feeling is that you will be tempted to buy one after a demonstration. And then there is the problem of persuading whoever holds your pursestring.

Bill Donald

PRINT 64

- Jansen Electronik
  c/o Daniel Dunleavy
  234 Jasmond Dean Road
  Newcastle upon Tyne
  Tyne and Wear
  Tel: 0632 811665
- Price: £76.95
- Limited to disk ownérs, but excellent for hi-res screen dumps

MICROGRAFIX (MW350)

- Impex Software Ltd
  Metro House, Second Way
  Wembley, Middx
  Tel: 01-900 0999
- Price: £89.95
- Versatile, usable with virtually any Centronics printer. Expensive yet good value

GRAPPLER

- P and P Micro Distributors
  Newhall Road
  Rosendale, Lancs
  Tel: 0706 212321
- Price: £76.95
- Very expensive but very powerful and easy to use

40 GAMES TO BE WON!

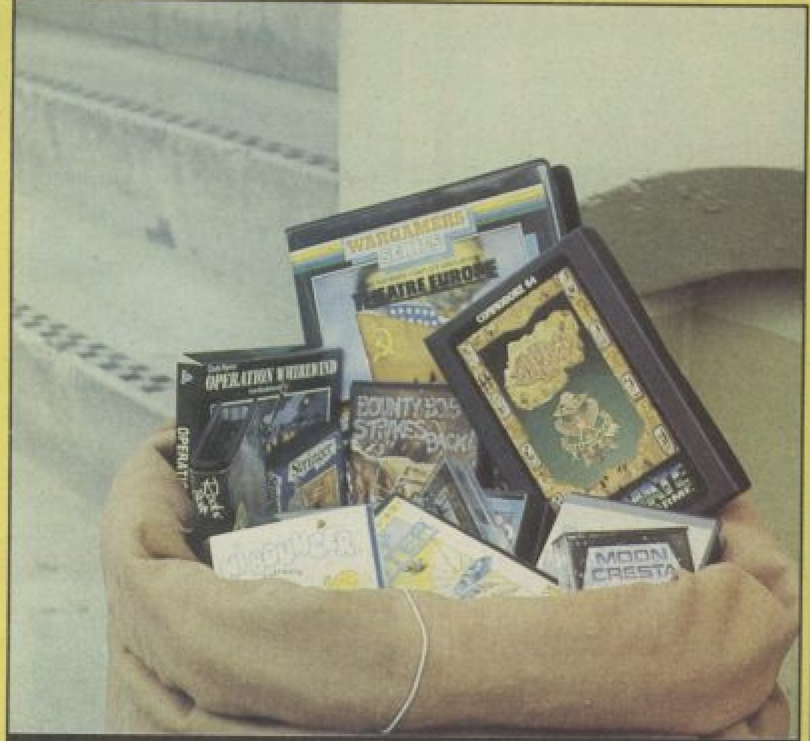
Here is an opportunity not to be missed. We are offering all the games reviewed in our Screen Scene section this month as a bumper prize for one lucky winner.

That's forty games altogether worth over £350. The games are Ghetto Blaster, Grog's Revenge, Entombed, Gates of Dawn, Theatre Europe, Stringer, Super Pipeline, Moon Cresta, Rock 'N' Bolt, Bounty Bob Strikes Back, Operation Swordfish, Spooks, Big Mac, Sky Jet, Rockman, Strange Loop, Jonah Barrington Squash, Boulder Dash II, Minder, Blagger Goes to Hollywood, Spy Hunter, Brian Blood Axe, Talladega, Hi Bouncer, Roland's Race, Super Gran, Carry on Laughing, Cave Fighter, Berks II, Berks III, Tower of Evil, Dark Tower, Glider Pilot, Doodle Bug, Rip, Operation Whirlwind and Realm of Impossibility.

That's one bumper package of games. All you have to do to win is write us a short story that will incorporate all of the titles of the games listed above.

The story must begin with the following words "There I stood at the Gates of Dawn with my Ghetto Blaster by my side". Try to make your story as short and interesting as possible.

Address your entry to Commodore User, Screen Scene Competition, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Entries should reach this office no later than 25th June.



SCREEN SCENE COMPETITION

Name..

Address..

....

....

WIN ULTIMATE GAMES!

The beautiful motif on the right is on the cover of the latest game from Ultimate Play the Game — *Entombed*.

Voted a Screen Star game by our reviewer, the game is the sequel to the highly successful *Staff of Karnath*.

Both games feature the English gentleman hero — Sir Arthur Pendragon.

In *Staff of Karnath* Sir Arthur had to find the hidden pieces of a key so that he could get inside an obelisk where the staff mentioned in the title was buried.

Entombed takes Sir Arthur to Egypt in a quest for the ancient Eye of Osiris. The game is set beneath the magnificent Sphinx. Sir Arthur's only clue in his adventure is the following verse:

The Eye of Osiris guides your way
Through corridors long and dark this day
But when henceforth the creatures come
It's Set who beats the eternal drum.
Search out the Scrolls, they hold the key
For that which will then set you free



But heed this message, for that which looms
Is ready to make thou forever Entombed.

Commodore User has ten sets of *Karnath* and *Entombed* to give away for the best tips, maps, or hints you can send us about 64 gaming.

Entries should be sent to Ultimate Competition, Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 5AU. Entries should reach us no later than 25th June 1985. Please make sure you write your name and address — including telephone number — clearly on your entry. The Editor's decision will be final and no correspondence will be entered into. The winning entries will be published in our super new games column — Hot Shots.

COMPETITION RESULTS

If you sent an entry into our April Breakdance competition you need wait no longer to find out whether you won that glorious shiny, red ghettoblaster. Understandably there were piles of entries, most of which answered right (c,b,c), but when it came to suggesting a song that would convert to a game many fell because they simply wrote down their current favourite record without wondering whether it would convert.

Breakdancing songs generally got the thumbs down because they've already been tried without great success. The only exception was 'White Lines' because it had a message. Other socially responsible titles were also considered like Feed the World and Ebony and Ivory. Few however, provided any originality so only those who used their imagination came close. A highwayman game from 'Stand and Deliver', and a Surfing game from 'Surfin U.S.A.' had potential as did a skipping game inspired by Malcolm Maclaren's 'Double Dutch'. The Rime of the Ancient Mariner an Iron Maiden ditty was thought over ambitious.

The eventual winner was selected from a few of you who chose Yellow Submarine. Personally I hate the record and always have done, but it does provide a number of varied scenarios. So, arise Colin Bray of Haywards Heath, West Sussex, a Sony CFSF 11 S is all yours. You'll be hearing from us soon as will the runners up, most of whose suggestions were mentioned.

Sequels form the core of this month's Screen Scene. A number of software houses have produced follow-ups to previously successful titles. We tell you whether they match up to the originals. Among those under scrutiny is another Blagger game, continuing the filching adventures of Alligata's thief. U.S. Gold figure twice with Bounty Bob Strikes back, a sequel to Miner 2049er, and another cartoon caper featuring Thor, B.C. II Grogs Revenge. There's a Super Pipeline II as well. Celebrities also get their fair share this month including Supergran, Minder and Jonah Barrington. There's nearly forty games reviews in there, including a selection for the Vic and the C16. For more information and previews turn to Hot Shots.



Ghetto Blaster
Commodore 64
Virgin Games
Price £8.95

On loading *Ghetto Blaster* you are presented with a superb street scene and foot-tapping hip-hop tune.

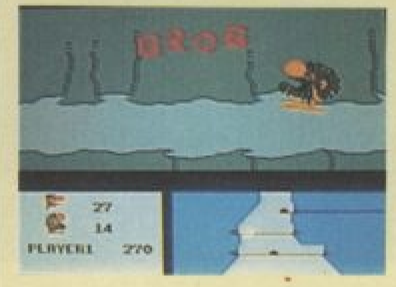
The game is set in Funkytown — a place made up of several streets named after some of the authors' favourite songs — all of which come from the '60s.

Ghettoblaster brings back Rankin' Rodney — the hero of *Jammin'* — in an attempt to get some music tapes successfully to the Interdisc studio. Naturally the nasties have other plans for the said tapes and try to stop you.

Some of the most vicious of these nasties are the Bandits of the Beat, Gangsters of the Groove, and the Tone Deaf Walkers. The best way to deal with these villains is to make them dance by letting fly with a funky sound from your ghettoblaster that you carry with you at all times on your shoulder. Make sure it's got batteries.

Before you can take the tapes to the studio you have to find them — and they are hidden all over Funkytown. There are shops and houses in all the streets and you search the buildings by entering the red, green, and yellow doors.

Ghetto Blaster has the best opening screen of any game I



B.C. II Grogs Revenge
Commodore 64
U.S. Gold
Price £9.95/cass

Another sequel, this time its the follow-up to *B.C.'s Quest for Tires*.

This time Thor, the hero of the game, is pedalling up and down mountains collecting clams. He simply has to ride over them on his bike as he patrols around the mountain. There are quite a few wandering around in the caves that honeycomb the various mountains, too. Once he has collected a hundred, that's a thousand points, he can go up to the toll bridge and advance onto the next stage.

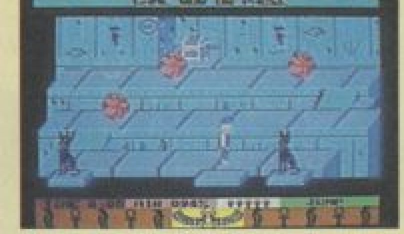
The joy about this game is the graphics which are marvellous. It's like being in a cartoon, because the whole thing is superbly animated. This is at its best when Thor runs into the many hazards that await him as he trundles around. For a start he can have steering problems and end up going over the cliff edge — whereupon his bike obeys the gravitational laws of cartoons and falls away from him before he follows it. Watch out for rocks as well because if Thor hits one he stops dead and the bike keeps going.

The high point of the game is when Thor meets the subject of the title, Grog. As he approaches you hear extreme bad news music, and should Thor ignore

SCREEN STAR







Sir Arthur Pendragon battles the nasties in Entombed.

Entombed
Commodore 64
Ultimate
Price £9.95

Another sequel, this time to Ultimate's highly rated *Staff of Karnath*. Like its predecessor it features the gentlemanly explorer Sir Arthur Pendragon, a kind of cross between an aristocratic Indiana Jones and Michael Wood of *In Search of the Trojan Wars* fame.

As before he has to search for things in this consuming maze game. This time, though, he has got himself in a bit of a mess whilst searching for the ancient Egyptian Eye of Osiris. He awakes to find himself incarcerated in an underground labyrinth of rooms and corridors with no obvious way out. To begin with you find yourself in a room where two giant statues slide together barring your way through the door every time you move towards them. Before you go anywhere you've got to get out of there. If you don't do it quickly enough you'll run out of air.

That's just the first screen. Once you get outside there are a multitude of rooms and hazards which await you. Just how many rooms there are I don't know, because Ultimate won't tell me and I haven't completed it yet.

The rooms are linked by corridors lined with hieroglyphics. Torches flicker on the walls and as you make your way along them bees, mosquitos and birds fly off the walls and plague you. The 3D high-res graphics throughout are horribly lifelike. Other hazards include a wandering mummy and a scorpion that makes such a vile scuttling noise that it makes your flesh creep. You'll need the whip to deal with these because if they touch you they sap your lives — depicted at the bottom of the screen by Ankh symbols. The whip isn't that far away and if you give them a taste of it they'll disappear, but not for long.

Your only aids are the whip (bit too Indyfied for my liking), a torch to guide you in unlit rooms, and your ability to jump. A message inscribed on the

have seen (shown in our screen shot left). The tape turns in the ghettoblaster as the music plays the, VU meter dances up and down just as in the real thing.

Ghettoblaster gives the same high standard of graphics and sound of *Bozo* and *Seaside Special* but the game-play is much more challenging.

For an exclusive map of Funkytown see our great new **Hot Shots** column. E.L

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

this he suddenly flies off his bike and Grog appears.

The strength and appeal of Grog's Revenge is also its weakness, because it's much more fun getting killed off than collecting clams and freewheeling round the mountain. Some vital element of achievement is missing. Don't let that put you off though because that would have made it a classic instead of just plain great. M.P

Presentation:	■■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■

cassette inlay gives you cryptic advice, the crux of which is the line "Search out the scrolls, they hold the key". So you know what you're after. Work your way through the rooms collecting the clues and that will eventually provide you with a solution.

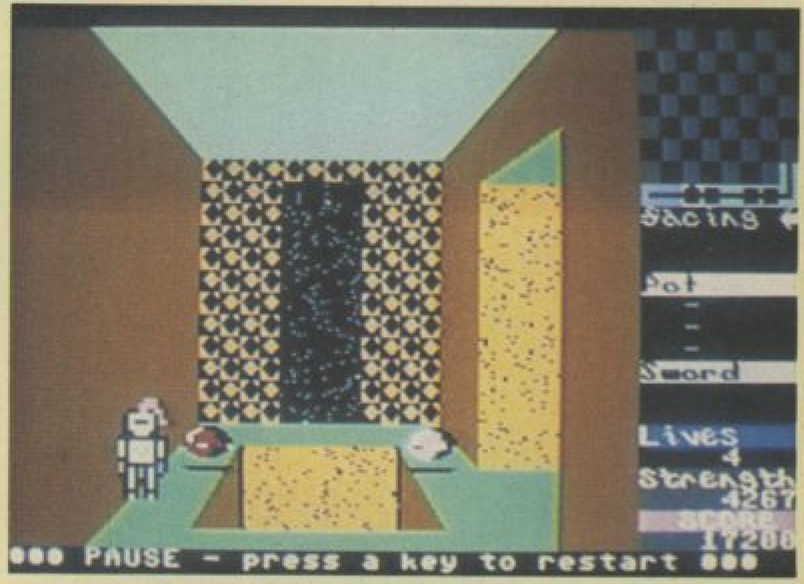
As far as I can tell not every room contains something of use or leads somewhere useful. There are lots of red herrings and dead ends, so mapping your route is fundamental. If you don't there's a good chance you'll repeat the same mistakes every time you go back to the beginning, or just stumble blindly, running into snakes and beetles. If it helps you can pause the game whilst you write a few notes. Messages appear on the screen very briefly so it's a good idea to pause them as well.

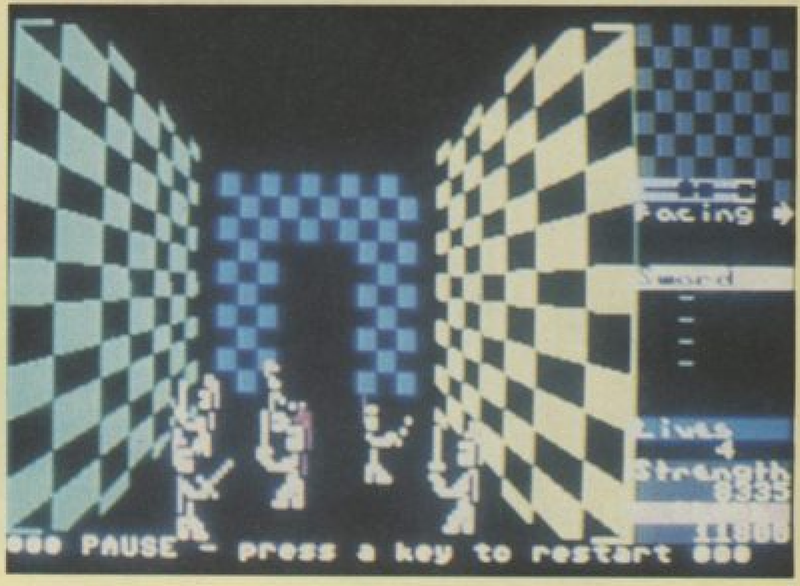
Entombed is another classic arcade adventure that'll keep you at the computer for hours. It has all the ingredients of another hit for Ultimate, and if you'll excuse me I must go or I'll never get out of here before it's time to go home. Whipcrackaway! E.L

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

SCREEN STAR

Gates of Dawn
Commodore 64
Virgin Games
Price £8.95





When I first got my 64 gaming was a pretty straightforward business. You had adventure games which were text only puzzles and you had arcade games which were mostly just one or two screen shoot 'em ups.

Then several clever-dick programmers began to add graphics to certain locations in their adventures and a multi-screen element to their arcade games. Arcade games became more than simply left, right, fire. You had to go to places in the right order, collect objects, and sometimes use them.

In short — arcade games were beginning to look and play a lot like adventures. So much so that some other clever dick — this one a journalist — coined the phrase — 'arcade adventure'.

So why am I telling you all this in a review of *Gates of Dawn*? Because the game is an arcade adventure — it will doubtless be described by the reviewers as such — but when you sit down and play it you get the impression that it is the first computer game that really lives up to the name.

What puts *Gates of Dawn* head and shoulders above most other arcade adventures including *Staff of Karnath* is that the puzzles you have to solve really are like those you face in an adventure.

You play the part of the White Knight who must penetrate the fortress of the evil wizard. I know that doesn't sound too different but it's the way the game plays that is special.

The action is set in a complex maze — 64 screens in all. Each screen contains a challenge, or clue, and exits to other rooms. As you travel, a map is created for you on a panel on the information board which is situated in the top, right-hand corner of the screen.

Games with this gamer-friendly aid always score highly with me. After all — why should you have to draw your own map?

Real adventure style puzzles — like the bottle you have to drain to make yourself reduce in size to get under one of the obstacles. All of the puzzles are logical and fun — just as they are in any good, straight adventure.



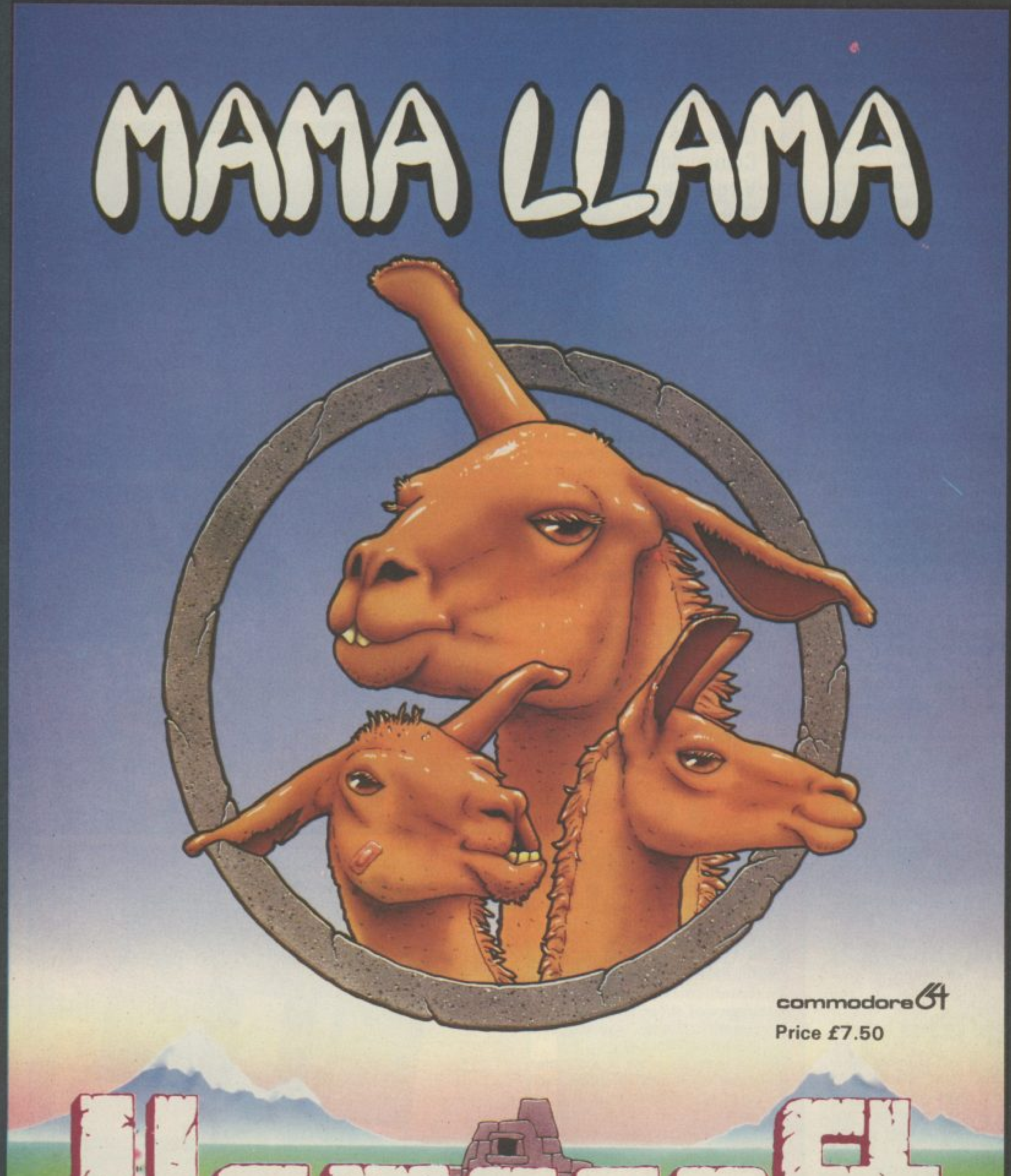
Above: The cloaked hero battles it out in Gates of Dawn.

Your information panel also shows what you are carrying, registers what you have picked up, and enables you to select items for use.

Charles Goodwin has tried to give the graphics in Gates of Dawn a dream-like quality and Virgin make much of this on the cassette inlay blurb. I don't know whether they are "dream-like" exactly — but they certainly are very good — particularly the mysterious Knight disappearing down a corridor which you get every time you enter a new room.

For my nine quid this is the best arcade adventure currently on sale for the 64. E.L

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■■■
Value for money:	■■■■


MAMA LLAMA
commodore 64
Price £7.50
Llamasoft
ORIGINAL SOFTWARE DESIGN

THE SOFTWARE TOP 20

COMMODORE 64

	Title	Publisher
1	**Soft Aid**	Various
2	**International Basketball**	Commodore
3	**Pitstop II**	CBS/Epyx
4	**World Series Baseball**	Imagine
5	**Impossible Mission**	CBS/Epyx
6	**Airwolf**	Elite
7	**Mooncresta**	Incentive
8	**Cauldron**	Palace Software
9	**Spy Hunter**	Sega/US Gold
10	**Gremlins**	Adventure Interna.
11	**Pole Position**	Atarisoft
12	**Rocket Ball**	IJK
13	**Ghostbusters**	Activision
14	**Bruce Lee**	US Gold
15	**Breakdance**	Epyx
16	**1985 (The Day After)**	Mastertronic
17	**Raid Over Moscow**	Access/US Gold
18	**Bounty Bob Strikes Back**	US Gold
19	**Booty**	Firebird
20	**Blagger Goes to Hollywood**	Alligata

GENERAL CHART

	Title	Publisher
1	**Soft Aid**	Various
2	**World Series Baseball**	Imagine
3	**Spy Hunter**	Sega/US Gold
4	**Ghostbusters**	Activision
5	**DT's Decathlon**	Ocean
6	**Gremlins**	Adventure Interna.
7	**Bruce Lee**	UG Gold
8	**Moon Cresta**	Incentive
9	**International Basketball**	Commodore
10	**Combat Lynx**	Durrell
11	**Football Manager**	Addictive
12	**Pitstop II**	CBS
13	**Shadowfire**	Beyond
14	**Starion**	Melbourne House
15	**Raid Over Moscow**	Access/US Gold
16	**Gyron**	Firebird
17	**Airwolf**	Elite
18	**Everyone's a Wally**	Micro Gen
19	**BMX Racers**	Mastertronic
20	**Impossible Mission**	CBS

Theatre Europe
Commodore 64
PSS
Price £

If a war game to promote the cause of peace seems like a strange idea to you then you will be baffled by the latest offering from PSS — Theatre Europe.

The instruction booklet opens with this dedication "This program is dedicated to the people of the world in the hope that the game is never played for real".

The game itself is very impressive. PSS are good at this type of strategy game. Their last offering — *Battle For Midway* is a minor classic amongst 64 war gamers.

In *Theatre Europe* war breaks out after a build up of tension — a very believable scenario.

Based on the first thirty days of conflict, Theatre Europe lets you choose to command the forces of NATO or the Warsaw Pact.

If you choose to command the Warsaw Pact forces your aim is to smash NATO by taking over West Germany.

The NATO player has to stop the invasion of West Germany and prevent advances on any parts of Western Europe.



Top: Contents of video-style box. Left: NATO forces. Right: Warsaw Pact.

Theatre Europe is not a 'pure' war game — it also features elements of arcade games and quite a few graphics screens.

The NATO versus Warsaw Pact scenario described above is the basic game — though there are more advanced play options.

The Advanced Game includes such delights as "Tactical Chemical Weapons (Gas)", and special air missions that can be used to attack enemy air units.

These are the advanced options for the NATO forces. Warsaw Pact commanders can select from the Airborne Army and Amphibious Army.

The arcade element of Theatre Europe does actually involve launching missiles and guiding them towards the enemy. Select the arcade part of the game by choosing the Action Screen.

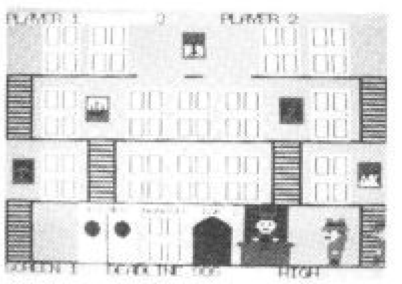
The screen select system is used as the menu for the whole game. It's all precisely described in the ten page booklet that comes with the game.

One of the criticisms of war games is that they tend to be difficult to get into. This cannot be said of Theatre Europe — a splendid effort has been made to make the game as easy to get to grips with as possible.

As well as the booklet of instructions the large video style box also contains a full colour map of the play area and the front cover of a fictional news paper called *Die Zeitung* which chillingly reports the build up of the tension.

Theatre Europe is a quality war game with painstaking attention to detail. **E.L**

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■■
Value for money:	■■■■



Stringer
Commodore 64
Addictive
Price £6.95

The object of the game, as they say, is to guide Stringer, ace reporter for the 'Daily Blurb' round the hotel in search of Polly Platinum, the blonde bombshell staying there. In true street of shame style the erstwhile hack has to snoop around all the rooms looking for her. He must also find his equipment, a camera, flash bulb, press pass and key, which someone (my guess is it's the programmer) has unhelpfully scattered around the hotel. If that wasn't enough you've got a deadline to meet, and if his editor's anything like mine he'll probably get nailed to his typewriter if he's late.

It's still all far too simple, so just to complicate matters there's an irate hotel commissionaire who pursues you up and down the levels. Yes, this is a platform and ladder style affair. Open the wrong door and you'll also let out a Mr. Angry hotel guest who'll join the hue and cry in his pyjamas. The idea is quite nice, but the gamesplay is limited. Successful completion of your mission just takes you onto another level of more of the same.

Control of Stringer is straightforward enough. It helps if you make him jump when the nasties are a bit close, or leap across a gap which they can't follow you over. Watch your footing though, or you'll end up falling off a ladder. Unfortunately he can't go into the bar, which is rather an omission for a hack.

Stringer isn't that special a game, but what it does, it does quite well. It's not bad, just a bit mediocre. **M.P**

Presentation:	■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■■



Super Pipeline II
Commodore 64
Taskset
Price £9.95/disk £11.95/cass

The type of game that gets dug out of the cupboard time and again, even after the novelty has worn off, is the one which is playable right from the off even by us MENSA rejects. The scenario has to be absolutely transparent without the aid of eight pages of ifs, buts, hows and wherfores.

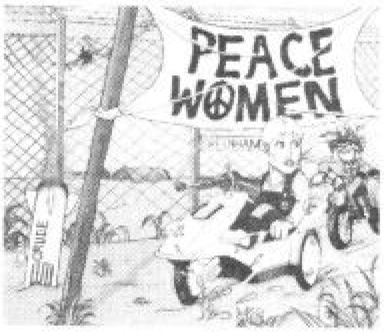
Last summer *Super Pipeline* opened up many a wallet, shot Taskset to prominence and caused umpteen joysticks to waggle as we tried to fill the barrels. As the foreman we had to intercept saboteurs, escort a plumber to blockages in the pipeline and protect him by frazzling Venutian spiders and lobsters, thereby keeping the water gushing. Screens rolled by to the accompaniment of a fair old soundtrack.

This all proved so popular that Taskset have gone for a second bite of the cherry. The theme is the same but there's more to see and deal with. The game-play has been polished . . . there's leaks instead of blockages and the barrels move along a conveyor belt; there's also umpteen fresh baddies, cartoon interludes and your SID chip receives a pounding again. Tactics now come into play but the game still retains it's simple appeal.

An improvement on a justifiably popular fun-game but you need to be keen to pay out £10 to replace your copy of mark I.

The departure of top-notch designers Tony Gibson and Mark Harrison was a blow to Taskset. But *Super Pipeline II* is proof that there is plenty of programming talent left in Bridlington. **L.S**

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■



Peace Women
Commodore 64
Knightsoft
Price £

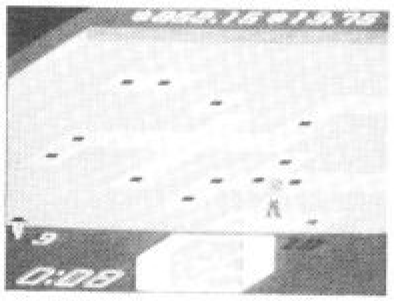
This game comes with a cover of a stock stereotype peace woman with short hair and dungarees. It might be offensive if it wasn't for the fact that she was sitting in a C5 with a gun mounted on the front, being pursued by a squaddy on a motorbike. Instead it's just faintly pathetic.

Further investigation is pointless, because the game is pure drivel. It could have been funny without trivialising and cheapening the topic. Like the worst sitcoms it starts with a complete stereotype and relies on that alone for its humour. All that happens is that your character (you are a peace-woman, like it or not) moves along a scrolling background of trees and buildings that never changes. A signpost for Greenham Common moves past every so often, but I never reached the base. After three screens I was bored to tears. Nasties encountered are said squaddies on bikes, something on pogo stick and flying ducks. It's rather difficult to be any less vague because the graphics are lousy.

Occasionally you pass a very old Arthur Scargill joke written up on the background and a swipe at Jeff Minter saying 'Llamas are loathsome'. I'm no Minter fan, but such a cheap comment is cringingly embarrassingly when the graphic style owes much to him. Though to say that is an inult to Jeff because the quality is so poor as to be like watching the telly with the aerial out. What else is there to say? You get three lives, differing skill levels and I really can't be bothered to go on because you don't want to buy this dross.

M.P

Presentation:	■
Skill level:	■■
Interest:	■
Value for money:	■



Rock 'n Bolt
Commodore 64
Activision
Price £10.99/cass £19.99/disk

Ignore the lousy cover on the front of this game which makes it look like a turgid business game, *Rock 'n Bolt* deserves better.

The basic idea is to make your man bolt down moving girders and get him back to his platform before the time runs out. In most rooms you must follow a blueprint exactly to complete the job. Many rooms stretch across more than one screen. Some rooms have no blueprint so you must just bolt the girders down and make it back to the lift as fast as possible (you get less time on these.)

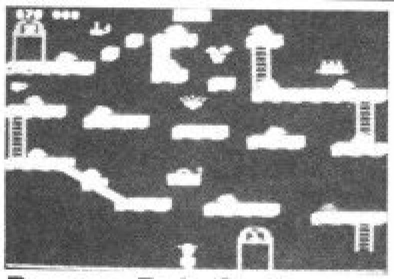
Should you bolt down a girder incorrectly, your rivet turns red. Black bolts mean you've got it right. Flashing green bolts earn you an extra man, which you may well need if you run out of time. Flashing gold bolts earn you bonus money, because all the time you're bolting and moving up levels, you're making money.

The rock element of the title comes in with the soundtrack which accompanies your efforts. There are several different foot-tapping tunes none of which have made me turn down the volume yet. They only serve to increase the feel of working against time.

Talking of time you get three options, the first of which is not really worth bothering about because the game relies very heavily on the race against the clock for its excitement. The graphics aren't particularly great but that doesn't matter because *Rock 'n Bolt* is pretty rivetting stuff, although it's priced rather too high.

M.P

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■



Bounty Bob Strikes Back
Commodore 64
U.S. Gold
Price £9.95/cass £14.95/disk

Bounty Bob continues his platform jumping activities in this sequel to Miner 2049er, which was the first game of its type. The follow-up has twenty-five levels through which you have to guide Bob through the mine avoiding the mutant organisms that have overrun it.

Bob must work his way through each level by claiming each section of the framework in the cavern. He does this by walking over it, turning solid. If Bob falls, even onto another platform just beneath him, he's a goner. Touching the mutants does him no good either, unless he's killed one previously or collected a 'treat'.

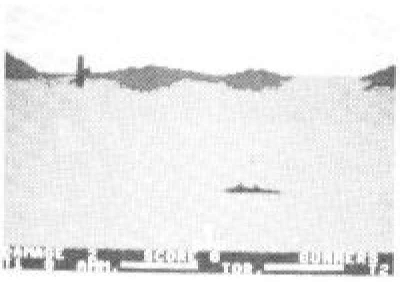
On his journey ol' Bounty comes across a number of items, some are relics left behind by Nuclear Ned, like the Mobile Suction Unit or the Pulverizers, most of which present a constant threat to Bob. Some like the elevators and hoists he must make use of if he is ever to defeat the plans of Yukon Yohan. Just to make things harder you're up against he clock.

If you're any good at it you get to put your score up. Now, you get to do that in any game, but here the nice touch is that you are in a factory and to write your name you must shove the letters off a ledge with a bulldozer. Pigeons then come and collect them and pin them on board.

Graphics and sound are not that special, but if you like platform games this has to be for you. If you find the low level a piece of cake then there's three more including the *C'mon* which starts you off with less time. Bounty Bob is good, solid hopping stuff but unless you're a platform fan you'd better not apply.

M.P

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■



Operation Swordfish
Commodore 64
British Software
Price £9.95

It's 1942 and the Allies have sent an invasion fleet towards the Mediterranean coast. Its your job to stop this. Yes, you're not even fighting for your own country. But you are at least a U-Boat commander.

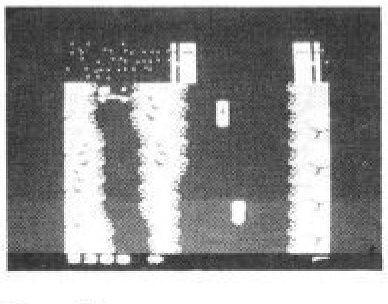
You have two methods of engaging Tommy in battle. You can either shoot down the Fairey Swordfish, or fire torpedoes at the convoy as it sails past. If this sounds at all familiar, one look at the screen with your gun will confirm that this is Beachhead revisited. This would not be so bad if the graphics and gamesplay matched up to the original, but they don't. You seem to be firing blocks at the approaching planes, and the explosions when you shoot them down aren't much reward.

Your main considerations are switching in between the two modes of attack. When the planes are flying you need to be on the surface. When the convoy starts depthcharging you need to be underneath firing torpedoes. Your one means of defence is a hatch which acts like a shield for some strange reason. If you can stay behind that and pop out occasionally you'll last a lot longer. You'll need to becaue this game doesn't allow much room for error. You do not have a whole pack of submarines, so the result is that it all tends to be over pretty quickly, which is fine from a patriotic viewpoint, but not much fun if you're trying to have a good game.

If some novelty could have been added, I might have felt better disposed towards it, but this is just a hybrid of *Beachhead* and *Sea Wolf* and not worth the high price either.

M.P

Presentation:	■■■
Skill level:	■■■■
Interest:	■■
Value for money:	■■■



Spy Hunter
Commodore 64
US Gold
Price £9.95/cass £12.95/disk

The action in this arcade conversion takes place on the open road with you at the wheels of your souped-up special agent car. Nasties come in the shape of enemy agents with real mean-sounding names like the Road Lord, Switch Blade, The Enforcer, the Mad Bomber, Barrell Dumper, and Doctor Torpedo.

Your turbo car is armed only with machine guns at first. Extra weapons have to be earned by successfully driving through one whole sector. If you manage this the weapons van will appear. Get behind this then drive up into it — via a ramp that comes down. Your car will now be equipped with a new weapon.

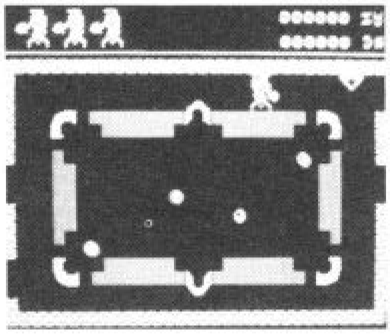
As you travel you will need various extra weapons — like the oil slick, smokescreen and the missiles for attacking the mad copter bombers.

The game scrolls vertically and has some quite attractive, ever-changing terrain. Part of the skill required is in keeping your car on the road — avoiding the broken bridges, forks in the road, or being bumped off by the enemy agents.

The best part of the game is the water section. You come to an old boat-house on the road. Enter this and your car is transformed into a speedboat. But don't expect a nice quiet spin around the bay.

To play this game with a joystick you will need to borrow an extra stick from a friend if you don't have two — and then connect them together following the instructions enclosed. It's a bit of a drawback but luckily the game can also be played with the keyboard and is actually better this way anyhow. An excellent shoot 'em up just the same. E.L

Presentation:	■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■



Brian Blood Axe
Commodore 64
The Edge
Price £7.95/disk

In the footsteps of programmers' jargon like 'landscaping' and 'movisoff', The Edge now offers 'primary imbalance'. But you don't need to know what primary imbalance is to grasp the essentials of this game or to enjoy playing it.

What we have here is a *Jet Set Willy* style platform game. The Edge are obviously not afraid of facing up to this similarity.

The three Brians that march back and forth in the bottom right-hand corner of the screen, awaiting their turn, is like an open admission that the game owes a debt to the Software Projects game.

The Edge obviously believe that it's a Willy type game but better and I must say I am inclined to agree.

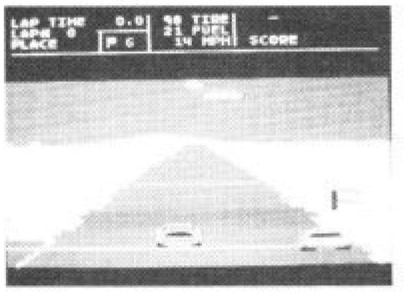
A whole hundred scenes have to be hopped through in Brian Blood Axe. But that is not all — many of the screens contain puzzles that need to be solved. Lateral thinking is required here as well as a Peter Pan-like precision in hopping from ledge to ledge.

One of the early puzzles is a snooker table with colourful balls crashing around on the green table. The secret here is to pick up and use the triangle. But just how you use the triangle is for you to find out.

The game is full of challenges of this sort — as well as the normal platform game challenge of working out how you are going to get onto the next screen.

An extremely polished platform game. The Edge set out to out Willy Willy, and they have succeeded. That said — I'm tiring of the genre. It's about time Matthew Smith came up with something new. E.L

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■



Richard Petty's Taladega
Commodore 64
Audiogenic
Price £7.95/cass £19.99/disk

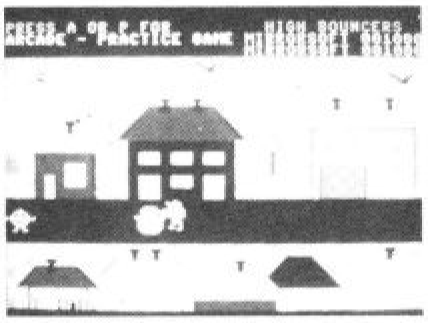
This game has its similarities to *Pole Position*. You have to do a qualifying lap against the clock, and if you make it, your time determines your grid position. There are three track options, the last of which is a random course. All you've got to do then is fight your way to the front, and I mean fight, because this game allows for plenty of bumping and jostling with the other eighteen motors. Don't push too hard though, or it's curtains for you.

It's the extra features that make this game worth playing, because whilst control isn't too difficult, there are a number of strategic elements that are original. In particular, you can slipstream behind other vehicles to save petrol. Whilst this is happening your car turns a lighter shade of blue and you hear a rushing wind sound. Like Pitstop, you also get to make, yes, pitstops for more fuel, tyre changes and repairs. It's best to do this when you get a yellow flag — that way you don't lose any places. You also get told who's behind you whilst you're racing which is important because each driver is programmed to drive differently.

On the minus side you get a very slow start in this game. You're often left standing on the grid whilst the others whip past you. Meanwhile your speedo tells you you're doing ninety. The game is also too long — thirty laps take quite a while, probably about half-an-hour. And another thing — who the hell is Richard Petty when he is at home?

Taladega is nevertheless not a bad addition to racing games, and is certainly different from the grand prix style approach. M.P

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■
Value for money:	■■■■



Hi Bouncer
Mirrosoft
Commodore 64
Price £7.95

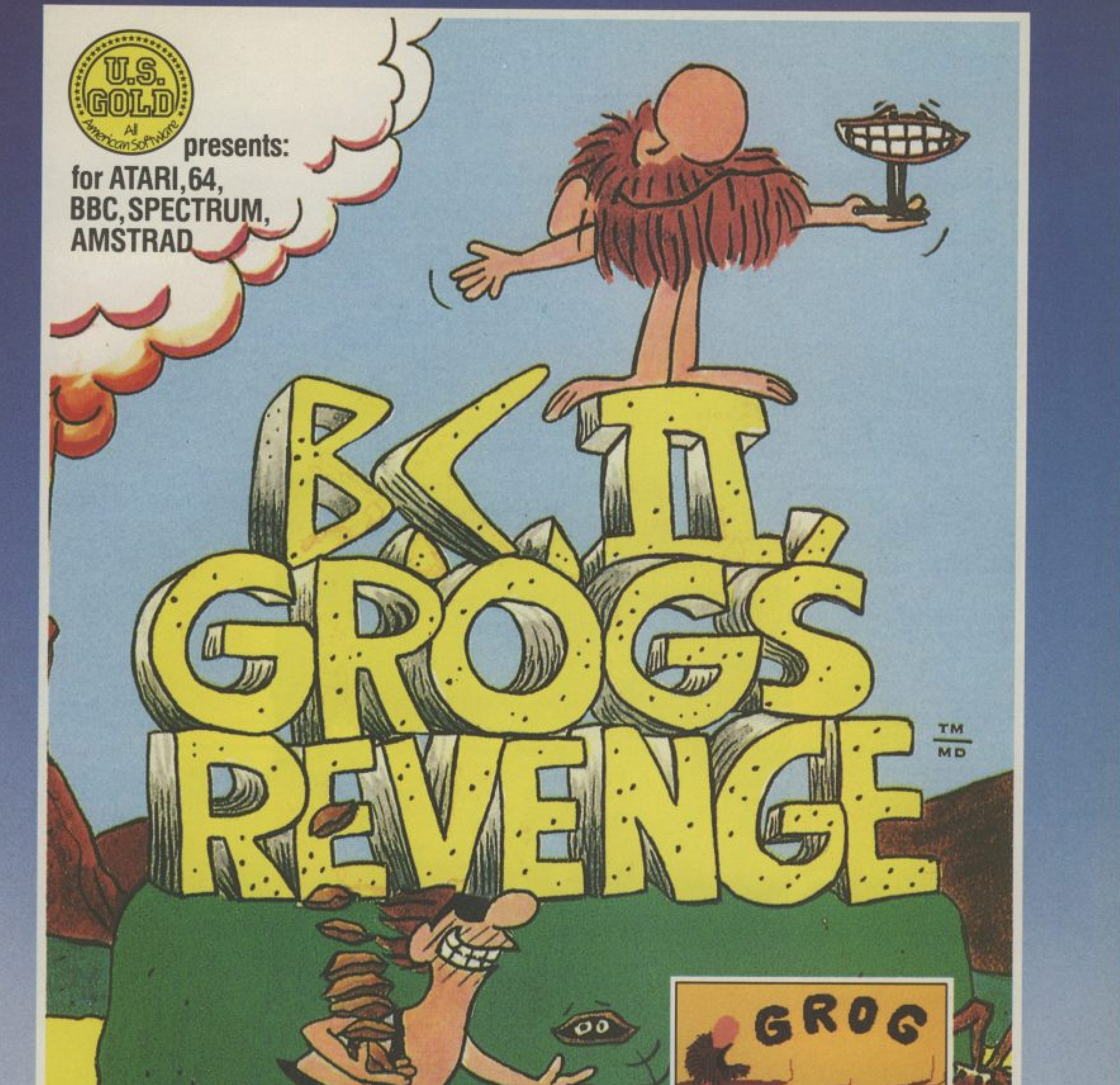
Hi Bouncer is one of Mirrorsoft's line of arcade games featuring none other than the Mr. Men. Doesn't sound very promising, does it? And it's not . . . .

You get four screens for your money in which you have to help out various Mr. Men in distress. Mr. Tall can't reach down to pick up his scarf, Mr. Lazy can't be bothered to finish his house, Mr. Bump is too bruised to pick any more fruit off the trees, and finally Mr. Snow is melting because of lack of shade. In each case Mr. Bounce has to come cartwheeling to the rescue. If he touches anything he goes off like a balloon with the air rushing out of it.

The pack claims that 'it's easy — for the first five seconds', but I'd contest that and say it's a lot easier than that. The practice version has seven levels of difficulty, the lowest of which is so slow, that it's like watching paint dry. The arcade option is fast, but once you've mastered what's required tactically — and you don't exactly need a doctorate in nuclear physics to suss it — the game loses what little appeal it ever had. The graphics are simple — like kindergarten pictures — and the sound poor, with a lousy lalala tune.

Basically it's too childish for anything but very young children to play. Who wants to play with Mr. Men when you can obliterate the Kremlin? And if it is intended for young children, which is doubtful, because nothing on the pack suggests that it is, then it's still a waste of time because such games should have an educational angle to them. The only thing Hi Bouncer will teach you is just how wet the Mr. Men are. M.P

Presentation:	■■
Skill level:	■■
Interest:	■
Value for money:	■■

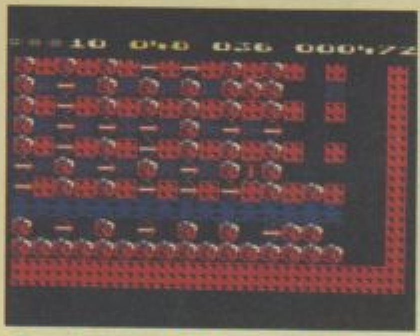

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SCREEN STAR



Boulder Dash I & II
Commodore 64
Monolith
Price £9.95

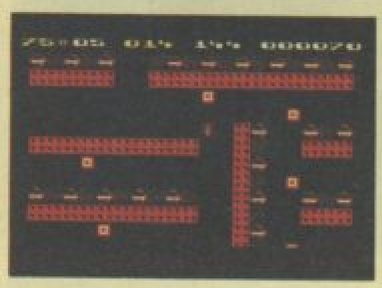
Remember Rockford — the cute star of the smash hit game *Boulder Dash* well he's back in *Boulder Dash II* and Commodore User has an exclusive review.

Biggest news about this sequel is that the original game is given away free on the flip side of the cassette. Well — maybe free is a bit too strong — after all the £9.95 asking price is a couple of quid dearer than most games.

But then a fiver-a-piece for Boulderdash I and II is still value for money when you consider that most good 64 games cost about £7.00 anyway.

For non BD'ers ther aim of the game is simple. You have to get Rockford safely through the





scrolling play area — a curious chequered board scattered with boulders, collecting diamonds as you go.

But if that sounds easy just you give it a try. There are sixteen levels to get through and five difficulty options.

Working out how to get those jewels without an avalanche of boulders landing on your head is the fun part of *Boulder Dash*. Decisions need to be made on the move — often in a split second.

Graphics are not one of BD's strong points — in either version. It is the mechanics of the game and the playability that puts it in the super-game class.

Other hazards appear like flashing squares that pursue you through the rooms. The boulders as well as crushing you can also be used to crush the chasers.

When all the diamonds have been collected on one screen a secret door opens up — through which you can travel to the next screen.

This is the scenario of BD I. At first glance version number II doesn't seem very different. The objective is the same though much harder to achieve. The main difference is the lay out of the scrolling play levels.

You begin with a seemingly unsolvable trap. You have to make a quick dash past four flashing chaser squares to get to the diamonds..

It takes a lot of practice to time your run properly to get past the chasers. Now the real fun begins — as you scramble for those diamonds making the boulders fall on your opponents.

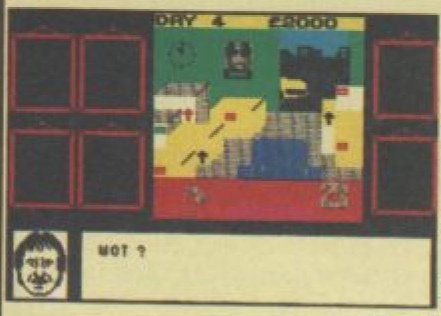
The key to success in Boulder Dash I and II is to study the screen very carefully — planning you route before you make your dash.

Another improvement version II has over the original is that you get a full size picture of Rockford on the title screen. The cutey stands there tapping his foot just as he does when he stops to think in the game itself.

Monolith are to continue the policy of giving away version one with the launch of the follow-up in another of their forthcoming launches — the sequel to Spy Versus Spy. Good news for gamers this — how about following suit Activision, Melbourne House, US Gold, Ultimate, Ocean, Llamasoft et al. Monolith is a new arcade games label to be launched by Beyond Software.

E.L

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■■



Minder
Commodore 64
Dk'tronics
Price £9.95/cass

This game manages — just about — to capture some of the atmosphere of the TV programme.

All the familiar names and places are featured in the game. Inspector Chisholm, 'Er indoors, the Winchester Club, and the Lock-Up — they're all here — everything has been thought of.

The aim of the game is not surprisingly to make as much money as possible by becoming Arthur Daley for a fortnight.

You begin the game with a bank balance of £20,000 from which money is deducted every time you buy something — or pay Terry to do a job.

Minder is really just a trading game — though the graphics' attention to detail allow you to lose yourself in it — despite its simplicity.

When someone talks to Arthur — either at the Winchester or in Terry's flat — the text appears in a panel at the bottom of the screen — as the lips of the person move. This was a nice touch.

When the Winchester is full of people you choose the face you want to talk to by pressing the number on the keyboard corresponding to the one beside the required person.

When Arthur decides he wants to leave the Winchester and visit his lock-up, Terry's flat, or go home — a car scene appears with our hero at the wheel of his Jag with the Minder theme tune playing.

As I have said — a fairly simple trading game. If you are a Minder fan then you will be amused by this game. If you had never heard of Arthur Daley and Terry McCann you probably wouldn't be quite as impressed. Review based on Spectrum version.

E.L

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■



Blagger Goes To Hollywood
Commodore 64
Alligata
Price £9.95/cass

Blagger, that rotten little tea leaf from Alligata, is back again with another follow-up. This time he's nipped over to Hollywood to nick the new Steven Spielbaum megadrama.

Whereas *Blagger* and *Son of Blagger* were both platform games, this is more along maze lines. Our intrepid thief must work his way through twelve studio sets collecting articles which will eventually enable him to get into Spielbaum's office and blag the film. Each article is a prop and is related to the twelve characters you run into. Launching the prop at the character will knock it out. However, specific props are needed for each character. You won't get very far throwing money at Jaws, for example. On your filching way through the studio you'll come up against the likes of Superman, Batman, Kojak, Robin Hood, James Bond, and the Hulk to name but half of them.

Other obstacles are power fields which you cannot cross and roving Tardis's which pop up frequently and can be eradicated with any prop. Watch out for those walls though because they're like fly paper! Typical objects include a silver bullet, a POW sign, a gun and a valium tablet, though what that's for I can't imagine. Whilst the graphics aren't that great, you always know who you're up against because of the great music which accompanies each character.

This is probably the best Blagger so far, it marks a departure of style which is good. Go out and get yourself a copy, but don't follow Blagger's example, buy one instead!

M.P

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■

SCREEN STAR

Strange Loop
Commodore 64
Virgin Games
Price £7.95

Here is a Spectrum cast-off that 64 owners need not be embarrassed to tell their friends about. Even the manufacturers — Virgin Games — reckon that the 64 version of *Strange Loop* knocks spots off the original.

The original game was written by Charles Goodwin, author of the excellent *Gates of Dawn*. Now I had better say straight away that the new version is by one Simon Birrell. He asked me to make sure I credited him for the 64 version — so there you are Simon, a promise kept.

Strange Loop is set aboard a space ship floating helplessly in outer space. Considerable damage has been inflicted by meteors and most of the ship's vital equipment is not functioning. It's you to the rescue as you search the enormous, 250 room space factory.

Mapping is essential if you are not to get hopelessly lost. You only have a limited oxygen supply so time is paramount in *Strange Loop*.

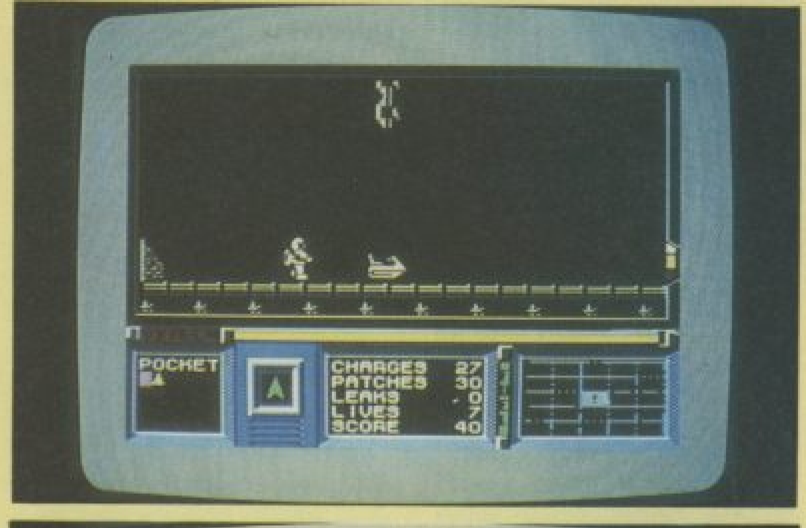
Your space man is difficult to control — tending to bounce off walls and pull against your desire to have him walk in a certain direction.

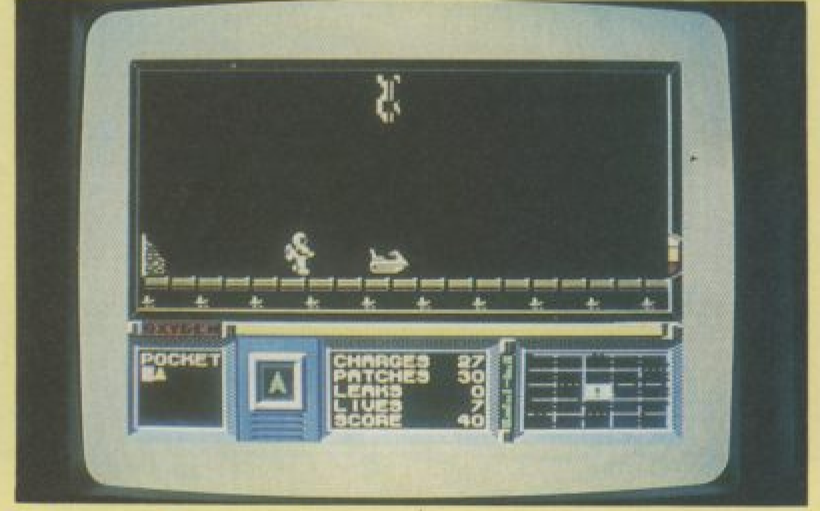
After a couple of hours play I discovered the reason for this. Our hero was never intended to explore this giant complex on foot. One of the rooms contains a jet cycle. Once you get hold of this your control over our hero improves a million percent. Actually, it's not just a case of hopping on the jet cycle and away you go. As with all progress in this game there is a puzzle to be solved.

The thrill I got when I won my jet cycle can't be described so I am not going to spoil it for you by telling you how it's done.

As the gravity control has been broken aboard ship the whole place is scattered with floating debris. Points can be earned by blasting this as you go.

Blasting is not really what *Strange Loop* is about though — so blasting objects, although it can get you into the hall of fame pretty easily, doesn't really mean anything.



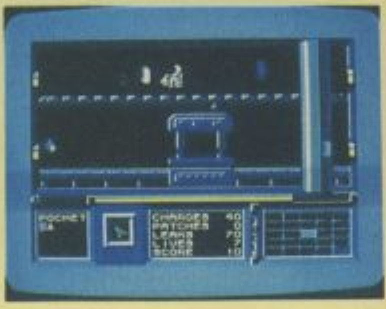


Above: Find your jet bike and start exploring the factory ship.

To win in this game you've got to use your brain as well as your joystick. The puzzles are all fairly logical — I say fairly because there are a couple of real stinkers in there, so don't say I didn't warn you.

As you travel you will find objects that you can carry with you in your pockets. Pressing the S and J keys enables you to select an item and use it in an attempt to solve one of the puzzles.

Some of the logical puzzles I talked about are things like a rusting robot. Well it's pretty obvious that a rusting robot can be put to rights with an oil can. But there is some very sophisticated machinery on board including computers, a laundromat, and de-compression units — and how do you deal with an unhappy robot?



As you travel there are messages on the walls of some of the rooms. I am not sure how useful these are but I do know one thing: there are plenty of red herrings about. Real ones. I picked up one of these and put it in my pocket. When I went to use it the message indicator told me it was a red herring. Laugh? I nearly smashed my 64 to smithereens.

Strange Loop graphics are superb. The machinery is colourful — with lots of metallic moving parts. Sound effects complement this — a dull thud as a huge press closed, or a lunatic screech where a room is completely out of control.

To tell you how good I think Strange Loop is I think I should explain that I am lucky enough to play lots of computer games at work. Very few games, therefore, get brought home to play at night or at the weekend. So far they include *Impossible Mission*, *Ghostbusters*, and *Dam Busters*. *Strange Loop* will be the fourth. A real Screen Star if ever I saw one.

E.L

Presentation:	■■■■■
Skill level:	■■■■■
Interest:	■■■■■
Value for money:	■■■■■



Jonah Barrington's Squash
Commodore 64
New Generation
Price £7.95/cass

Naming a squash simulation game after Jonah Barrington is like putting forward Bobby Charlton as the ultimate in soccer prowess — he was a Bobby dazzler, but he's no longer putting in the winners. Anyway, JB is the only squash player most people have heard of.

Never mind that, since this game has little to do with Jonah himself, except that his autograph appears on the insert along with simple instructions and a set of playing rules — laid down by the International Squash Federation, no less.

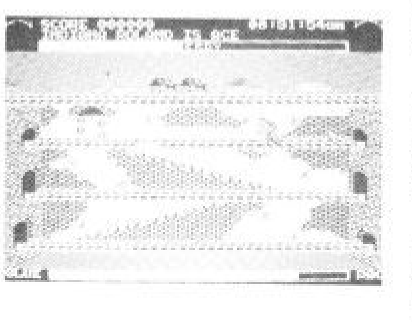
Playing the game follows the format adopted for various tennis simulations in that you hit the fire-button to play a stroke. You can play either the computer or use two joysticks to battle it out with a real opponent. Levels of difficulty correspond to the four 'dot colours' on squash balls.

Squash is too quick and too energetic to be simulated successfully on-screen. Given that obvious drawback, the shots really do play realistically: getting a tricky shot back off the back wall is just as hard as the real thing — maybe not for Jonah. Still, it's more a case of novelty than lasting value.

Only the sound pulls this game out of mediocrity. The umpire's voice, calling out the score and 'hand in', 'hand out' etc is very realistic. In fact it's none other than our Jonah's digitised voice in glorious 'Reprosound' as the cover tells you. New Generation claim that JB uses the game himself for coaching. One disappointment was the sound of the ball — since when did squash sound like Breakout?

B.B

Presentation:	■■■
Skill level:	■■■■
Interest:	■■
Value for money:	■■



Roland's Rat Race
Commodore 64
Ocean
Price £7.90/cass

Roland's Rat Race is the second game from Ocean starring TV AM's rodent superstar.

This time Roland is caught up in a frantic race in the sewers below North London as he struggles to find his way to the TV AM studios in time for his broadcast.

Roland's furry friends Errol and Kevin have been kidnapped and are being held captive by the nasties. It is essential that you secure their freedom before dashing off to the studios.

As you might imagine there are several nasties down in those sewers and they all have one thing in common — they can't stand Roland Rat superstar.

Roland's only defence against the Wellington boots, slimy slugs, and other nasties is his tube of stic-o-matic glue which he can squirt at his enemies to temporarily immobilise them.

The key to cracking Roland's Rat Race is to work out a map of the huge underground complex. One of the sewers is blocked by a giant door.

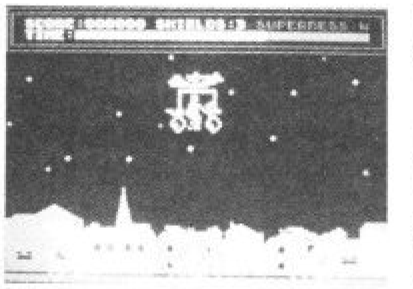
To get past this you will need to find the various pieces of the door hidden throughout the sewer — and take them one by one to the door.

Once the door has been assembled you can then go searching for the key.

If this sounds a little too easy, you should also know that you have a limited energy supply and you can only carry one item at a time. Energy can be boosted by eating the apples and burgers that appear randomly.

Graphics and sound are excellent. In fact the whole game is up to the high standards we have come to expect from Ocean programmers. A fun arcade adventure. E.L

Presentation: ■■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■



Super Gran
Commodore 64
Tynesoft
Price £9.95/cass

This game is a good illustration of the pitfalls of producing and selling computer games around TV programmes and films.

Take the case of Super Gran — for example. We all know that it's a great programme, right? Quite a coup then for Tynesoft to get the rights to produce a game based on the programme. According to the cassette inlay of this it is "a truly amazing game with superb graphics on 8 action packed screens". Now to call the graphics in this regrettable piece of software "superb" must be at best an exaggeration of enormous proportions and at worse a downright lie.

What you actually get are the most chunky graphics imaginable — all the objects are one colour. There is no use of shading — in fact they are so basic in some of the screens that they look as if they were drawn in crayon by a six year old. And "8 screens" — well, how mega-amazing!

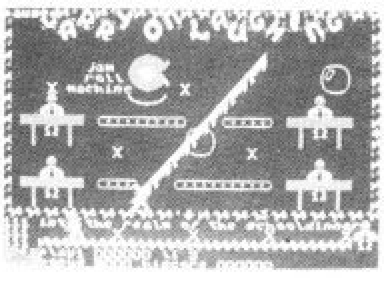
Back to the cassette inlay card. "Professor Black has asked Super Gran to help him take his Skimmer to the Science Exhibition". More disappointment here. The famous skimmer looks more like a waffle on wheels. Just a yellow rectangle scrolling between two blue areas — presumably this is supposed to be a road.

Scunner Campbell is also supposed to appear in this scene — though I couldn't spot anything that looked remotely like him.

Adventure International are going to do an adventure game based on Super Gran. I hope they make a better job of it than Tynesoft.

Steer clear of this rubbish E.L

Presentation: ■
Skill level: ■
Interest: ■
Value for money:



Carry On Laughing
Commodore 64
Live Wire
Price £6.95

I could hardly contain myself as I waited for this game to load. I had visions of all my old favourites starring in this game. There would be saucy Barbara Windsor, hilarious Sid James, Hatty Jakes and all the team.

But alas — none of this. The game loaded to reveal a simple platform game with fairly average graphics.

Set inside a crazy school "St Hexadecimals, an infamous school for demented programmers".

You play the part of the hard-pressed caretaker — Mr Livewire — who has to clean up the classrooms after the unruly mob of student programmers have done their worse to wreck them.

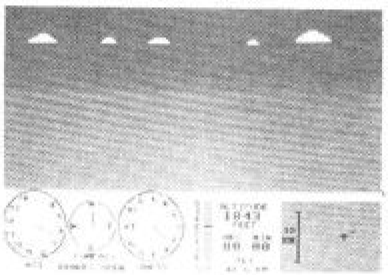
The action begins in the Dining Hall where a giant jam roll machine has gone out of control and is spewing out puddings as fast as the pupils can eat them.

Above each of the four tables is an X. Mr Livewire has to jump up and touch these Xs to turn them into ticks. To do this he will need to hop aboard the floating bubbles that will take him up to the top levels.

Should our brave caretaker make contact with any jam rolls on his quest then it is curtains and he'll have to begin again.

One really annoying thing about Carry On Laughing is that every time you are killed you have to wait several seconds while the game runs through a pointless routine of setting up the play area. First the screen is dragged horizontally into view — then a spray can appears and paints in the colours. It just becomes irritating after a while. I can't really recommend this, it's no more than an average platform game. E.L

Presentation: ■■
Skill level: ■■
Interest: ■■
Value for money: ■■



Glider Pilot
Commodore 64
CRL
Price £8.95/cass

There is now a bewildering selection of flight simulators available for the 64. Most of these feature chunky graphics, as does *Glider Pilot*.

I have three grouses: the "F" keys do not correspond exactly to the instructions, there is a tendency for a black line to appear temporarily through the instruments, and the compass is less than perfect.

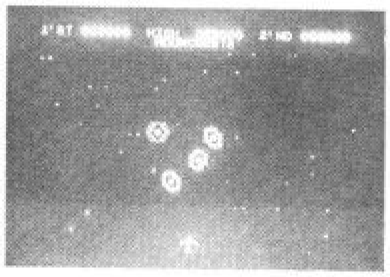
Acknowledging these faults, the program is still a worthwhile medium for would-be pilots who lack the necessary bottle to actually soar over the Dunstable Downs. It's also a novel change from normal flight simulators.

Written by a devotee of the sport, the simulation sets you the task of navigating a triangular course under competition conditions.

The aerodynamics are explained in the manual, detailing optimum cruising speeds, the art of climbing in thermals and how to interpret the specialist instrumentation. You soon learn to head for the "cauliflowers" and twirl up to today's inversion height, which is dependent on the presets chosen, as is wind speed, direction and generaly frequency of the thermals. A nice touch is the barograph trace supplied after each flight; this allows you to analyse your hash-ups. The subject is fascinating and CRL have come up with a reasonable, though not brilliant, exposition.

Regular Screen Scene readers may be wondering what has happened to CRL's *Rocky Horror Show*. The long awaited game still fails to turn up on the *Commodore User* reviews desk. "Any day now" promises spokesman David Crossweller. L.S

Presentation: ■■
Skill level: ■■■■
Interest: ■■■■
Value for money: ■■



Moon Cresta
Commodore 64
Incentive
Price £6.95

Incentive have been making waves lately.

Their latest game — *Confuzion* — had the Commodore User office in a complete tizzy recently.

Now the thundering shoot 'em up — *Moon Cresta* — looks set to repeat the success of *Confuzion* for Incentive.

This is a classic arcade 'shoot 'em up' and a faithful reproduction of the original coin operated job of the same name, also known as Firebird.

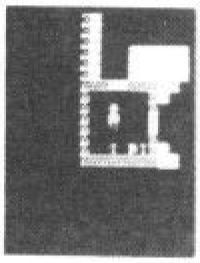
Aliens whizz all over the screen tracing out pretty patterns while you attempt to blast them into the middle of next week with your rocket ship. When several waves have been obliterated you get the chance to earn bonus points by docking with the mother ship.

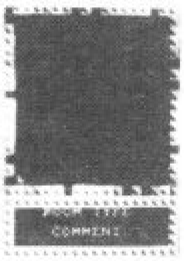
Dirty tricks are employed to deprive you of your three lives. On completion of one particular wave, meteors rocket across the screen at the speed of light. The only chance of escape is if you're lucky enough to be tucked away in the corner, out of range.

Nothing new here, just sheer, unadulterated blasting pleasure. Incidentally, for those good enough to score 30,000 points Incentive are offering the chance to win an original Moon Cresta arcade machine. You'll need plenty of practice. After two or three hours the best I could manage was 10,000.

Adventure fans are in for a treat from Incentive. Their excellent *Ket Trilogy* is shortly to make an appearance on the 64. Watch out for this trilogy — it is a minor classic amongst Spectrum adventure freaks. K.M

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■
Value for money:	■■■





R.I.P.
Vic 20 (unexpanded)
Mastertronic
Price £1.99

This is just a mad-cap dash around 20 interconnected mazes, which are supposed to represent creepy crypts. I only know that because it says so on the inlay card and the Death March keeps filtering through trying to convince me of its ghoulish identity.

The mazes are shaped like skulls and fish or just amorphous . . . they are not of the 'get lost' variety. User-defined characters zoom around dressed up as monsters, spewing out some disgusting filth that looks like little arrows. That's if you possess imagination.

You need to collect a chalice from each room and avoid/shoot the manic depressives in order to play the game to the full and make everything wholesome again. Obviously all 20 rooms have to be located as it's no good covering the same ground repeatedly.

Once again the programmer (who also did the spiffing Rockman) has presented you with an expanded screen and taken the trouble to design an interesting title sequence.

Budget software is becoming increasingly popular. This month Screen Scene tests no less than eight new games with a £1.99 price tag.

The general impression of this mega cheap games review is that the latest cheap offerings aren't all that bad.

When Mastertronic started the whole cheapsoft ball rolling last year almost every single game they brought out got slammed in the press.

The quality has now improved immensely. L.S

Presentation:	■■■
Skill level:	■■
Interest:	■■
Value for money:	■■■■



Operation Whirlwind
Commodore 64
Ariolasoft
Price £11.95/cass £14.95/disk

War-gaming offers a complete break from the usual formats which are handsomely catered for on the 64. There are several scenarios available . . . but in this case *Operation Whirlwind* revolves around the capture and retention of a town.

Strategy is everything. You need a complete awareness of your forces' capabilities and vulnerabilities.

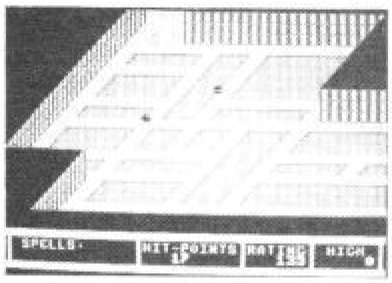
Armour and infantry need handling differently for they have inherent, distinct weaknesses and strenghts. Reconaissance units can be employed to draw the enemy's fire ready for the combat phase. That's one major divergence from an acrade battle; you have to work through five stages or modes instead of the action being immediate. And that doesn't mean you first want to get them over with as quickly as possible either.

Firstly you either 'dig in' a unit or prepare it for battle; then shift your forces around using a command cursor, taking advantage of cover from woods and gaining as much advantage as possible.

Combat mode swops the cursor for a hairline cross sight and allows you to direct fire. *Assault* or *overrun* phase provides for no-nonsense close combat or for the engineers to mend bridges. The last phase gives intelligence readouts as to the degree of success of your last manoeuvres. All that counts as one go! Phew.

The scrolling map is very clear but the miniscule symbols representing your forces take some getting used to. Four levels of play should ensure a lasting interest in the game which could well whet your appetite for more sophisticated fare. L.S

Presentation:	■■■
Skill level:	■■■■■
Interest:	■■■■
Value for money:	■■■■



Realm of Impossibility
Commodore 64
Ariolasoft
Price £9.95/cass £12.95/disk

This is tantalising, slightly comical (hilarious even, in the two player mode) material and too much coding for the 64 to hold in one go. *Realm of Impossibility* is basicly a souped-up *3D Ant Attack*: how souped up? Well there's a 13 multi-screened dungeon (129 rooms) each packed with those nasties we all hold so dear, mega spiders, coily snakes and matchstick zombies.

To maximise the scale of each complex chamber all the characters are of minimum size. Their one aim in their un-dead existence is to drain away your life force with their clammy, flesh creeping touch. As you scamper about seeking keys and locks (tokens which gain you access to certain boarded-up dungeons) and magic spells you learn ye ancient crafte of dropping blocking crosses. They're not permanent but offer temporary protection if used intelligently.

The motivation behind the game is the prospect of exploring all 13 catacombs with a belly-load of laughs on the way. As far as I'm concerned the points are purely incidental.

The full perspective dungeons are superb; apart from having convincing 3D they are also complex with varied architecture, offering plenty of scope for a good poke around up and down the stairways.

One drawback is that after loading the main program each dungeon area has to be loaded in separately. At most this is a nuisance but it certainly doesn't cripple the game. If you don't find this addictive maybe you should give tiddlywinks a whirl. L.S

Presentation:	■■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■



Hunchback
Vic 20 (unexpanded)
Ocean
Price £5.90

Quasimodo is hot property in the video world and it's my guess that his hunched back comes from ferrying filthy lucre to the Nat West. With the prospect of sequels-of-sequels to come, his deformity will become an enormity.

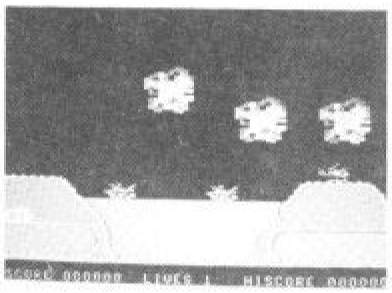
There's 15 screens (wow!) of rampart acrobatics in the basic Vic version: to complete a page you need to jump and swing your way to the bell on t'other side, spurred on by the plight of the luscious Esmerelda awaiting a rescue that's likely to be a long time coming. Time your jumps over the crenellations so as not to dash your brains out on high-flying fireballs, still watching out for sneaky skimmers. Guards are ever ready to probe tender regions with their lances and there is no stopping the geezer in the tin suit trundling along behind. By the time the lady is eventually freed, the deep fiery pit will hold no terrors for you, as familiarity breeds contempt.

Although the animation is jerky the program is well worth latching on to.

Nice to see Ocean launching a Vic game. Game-starved Vic owners will be grateful for the flood of cheapo games coming out for the old micro. But with companies like Bubble Bus (see *Cave Fighter*) and Ocean launching games for the machine, Vic gamers can also look forward to a bit of quality.

Talking about Ocean, I hear a whisper that their *Frankie Goes to Hollywood* game is about to hit the shops. No — there won't be a Vic version. But what is interesting is that it has a lot to do with "Love, Hate, Sex and War". I just hope Mike Reid hasn't got a 64. L.S

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■■■



Sky Jet
Commodore 64
Mastertronic
Price £1.99

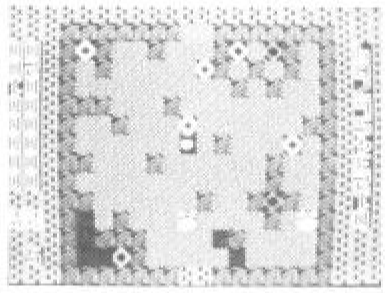
Betcha the T.V. series "Airwolf" and its software spinoff was the reason this cheapie saw the light of day. *Skyjet* is an impressively speedy and well armed helicopter destined to dodge clouds of flak whenever a 64 owner feels the need to indulge in a bout of over-the-top warfare.

Death-dealing contraptions certainly claim their fair share of screen space. Tanks keep pumping shells skywards, jets streak across the sky, saucers bob about unpredictably (don't they always) and sneaky submarines attempt to land reinforcements; make these priority targets.

Somewhere along the line you have to pluck up and ferry radar components etc. and build installations. You have rockets and depth charges yet some of the enemy seem to be encased in extra tough armour plating.

For two pounds you get a scrolling screen, ten levels of play, at least two phases and adjustable sound effects. This deceptively tricky game should provide more than a few cheap thrills for shoot-anything-that-moves merchants. L.S

Presentation:	■■■
Skill level:	■■■
Interest:	■■
Value for money:	■■■■■



Rockman
Vic 20 (unexpanded)
Mastertronic
Price £1.99

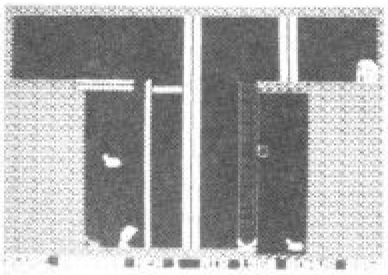
There was a time when any game ending in "man" indicated a *Pacman* clone; now he's almost forgotten.

Rockman puts me in mind of the superb *Boulder Dash* (sorry chaps 64 only) in it's general conception. You get a dramatic picture — first time buyers beware! — and the obligatory fanciful yarn concerning a wicked uncle (yawn, yawn) but darn it, the game is good, no . . . very good fare for the basic Vic.

The plush screen is fully expanded and benefits from liberal daubings of brash colour; furthermore "Popcorn" is played continuously during the game. What you have to do on each of the 20(!!!) varied pages is to collect eight diamond shaped thingamies, which are tucked away behind rocks. As you chomp away the earth, exposing the boulders, they obey the laws of gravity. This will crush sluggish Rockmen or if you're clever, the purple zombies as they stumble around in pursuit.

Each screen, then, is an arcade puzzle: you need to predetermine your excavations and be pretty nippy to boot. A good idea and a joy to play. L.S

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■■



Bic Mac
Commodore 64
Mastertronic
Price £1.99

This game follows the well-worn footsteps (some would say furrows) of *Manic Miner* and *Blagger*. Here you are a secret agent in the guise of a power worker engaged in the hyper exciting (some would say routine) task of shutting down 18 generating stations.

This you do by throwing switches, making deft jumps, scuttling up and down ladders and avoiding no-go areas as you wend your way to each exit. Great fun if you've been lost in the Gobi desert for the last 18 months but with few surprises for old stalwarts.

The graphics are purely functional and in some places very faint on the average domestic T.V. There's no way I would take the time to work through all the screens but if there's a yawning gap in your library you could well consider this a good bet, especially if you've had no practice at avoiding the typical hazards unleashed by the security system.

At its budget price it might be worth considering if you don't really want anything special for a platform game, but don't bother buying if you want the real thing. Pay the extra instead. L.S

Presentation:	■■
Skill level:	■■■
Interest:	■
Value for money:	■■■■



Spooks
Commodore 64
Mastertronic
Price £1.99

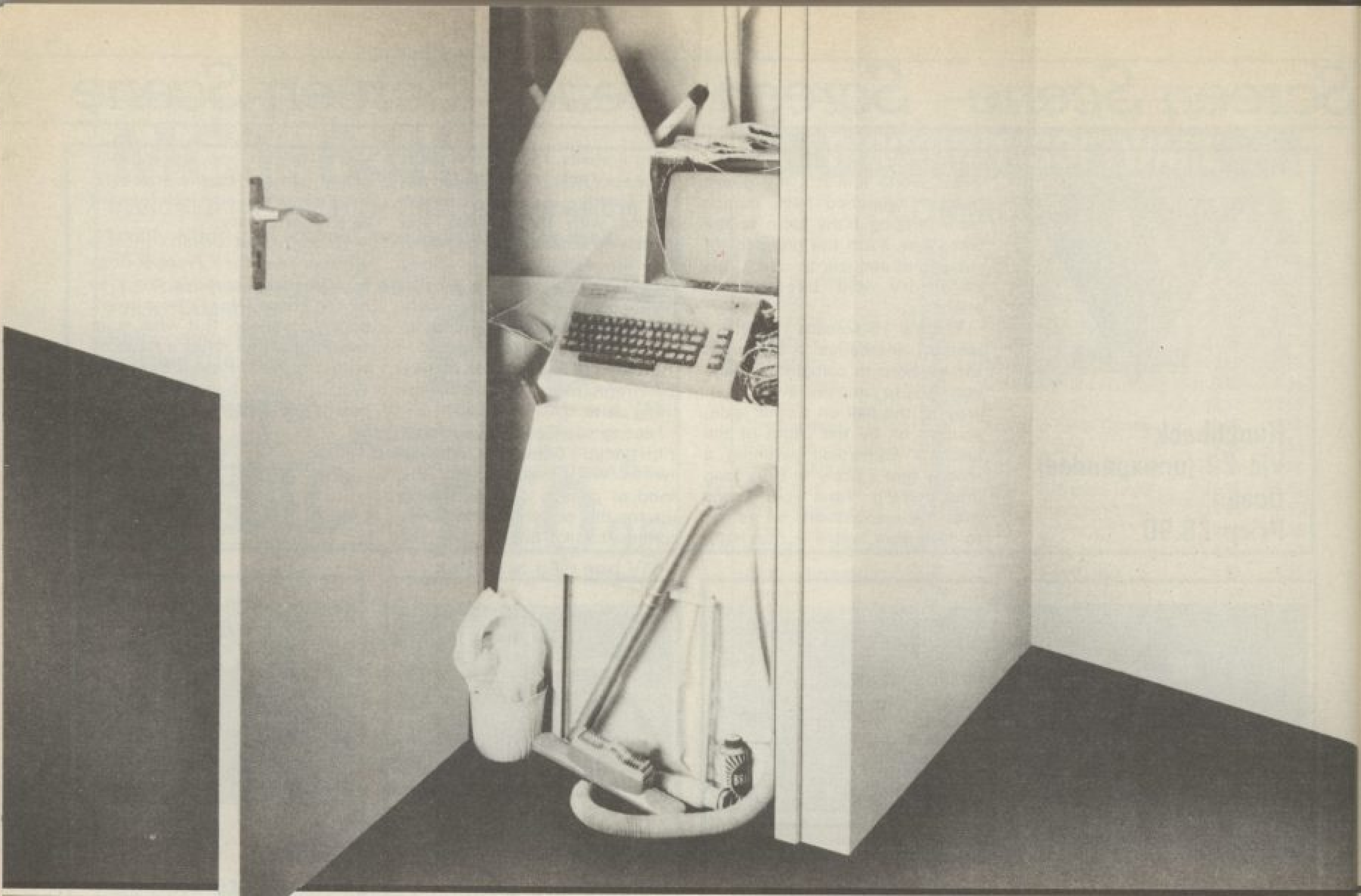
If you want to sample the flavour of an adventure game but feel quite sure that the latest interactive brain buster will lose you, this budget offering might be a good place to start.

This real-time, very graphic, arcade adventure draws the map for you as you plod on your way through a haunted house and provides a set of menu driven commands. You just enter the number. The commands are simple like: do nothing, pick up item, and eat item.

The underlying theme is for you to exorcise a vast rambling mansion and its surrounding grounds which are haunted by refugees from countless Pacman games. This megafeat is accomplished by collecting the eight fragments of a music box and playing the Death March.

Any clocks you may find en route should be set to after midnight otherwise the spirits hold a mightily unfriendly convention. You will be done to death many times as you explore the colourful chambers and the "home run" will be many playing hours away. Has to be sound as a pound when it comes to dabbling with adventures. L.S

Presentation:	■■■
Skill level:	■■
Interest:	■■■
Value for money:	■■■■■



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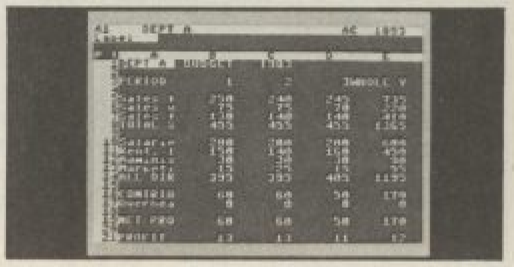
Calc Result is easy to learn, with its help screens and pedagogical manual, and so simple to follow as it features includes built in graphics and on-screen printing.

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TECHNICAL DATA

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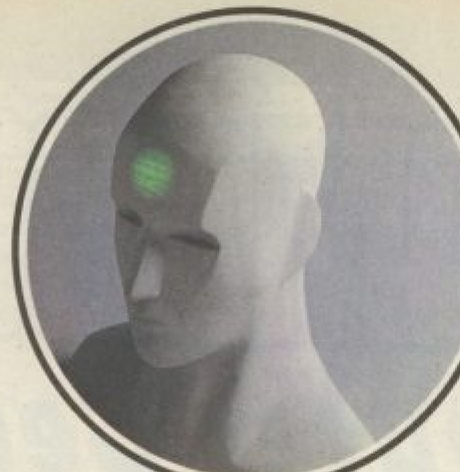
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Handic Data Base is easy to use and understand as the menus are designed for people who don't have much experience with computers and data bases.

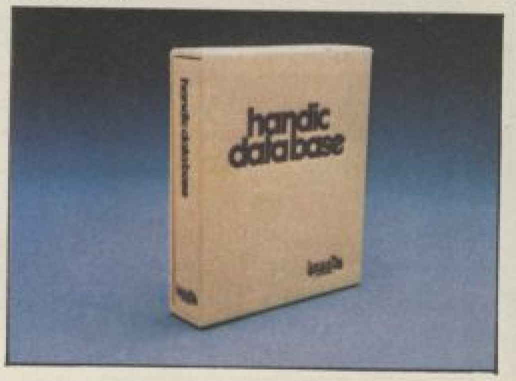
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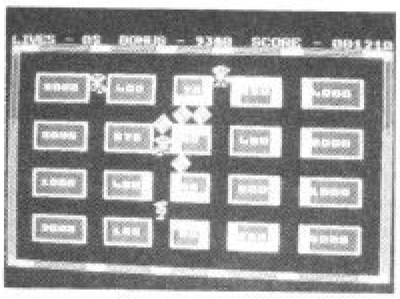
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Major Blink/Berks 2
Commodore 16
CRL
Price £6.95

Apart from the subtitle, you'd be hard pushed to spot any resemblance between Major Blink and the other two Berks titles. The tenuous connection is in fact the Major, creator of the Berks, now turned painter and decorator.

This is one of those games where you have to score points by painting blocks on a grid. Supercool bears, wearing shades and gold medallions try to thwart your efforts by repainting your work. These you can dispose of with your 'fast action, high velocity, belt mounted laser cannons'.

Talk about heavy on the armaments. I must admit to feeling a bit sorry for the supercool bears, up against that lot, with only a pair of Ray-burns to protect themselves.

The appearance of the homing drones of *Berks 1* and *3* do little to enliven a basically lukewarm game. It might appeal to younger or less experienced games players.

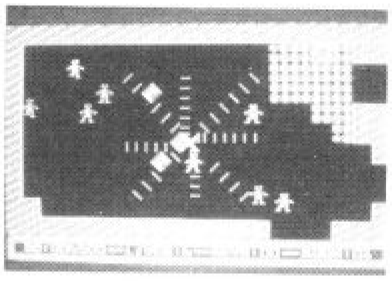
Calling all Berks fans. If you are a fan of the excellent Berks series then you won't want to miss your chance to get the fourth and final game in the series absolutely free.

The game is published in listing form in our *Celebrity Book of Games* which came free with this magazine.

If you don't want to type it in it is available on tape from CRL, 9 Kings Yard, London E15. Please send cheque or postal order for £3.00. Your application must include a cut-out of this review.

K.M

Presentation:	■■■
Skill level:	■■
Interest:	■■
Value for money:	■■



Berks 3
Commodore 16
CRL
Price £6.95

They say there's one born every minute, and the rate Jon Williams is going at I can well believe it. *Berks 3* takes you back in time to the City of the Berks.

You must penetrate the Berks' inner sanctum and steal the source of their power, hoards of treasure.

On the way keys must be collected from each room. A more difficult task than it sounds, as each key is surrounded by a barrier of protective blocks, through which a path must be blasted.

To add to your problems, hordes of Berks and their faithful homing drones are constantly in hot pursuit. You start with a generous five lives and can gain an additional four by collecting the various hearts dotted around the place.

Berks 3 is, without doubt, the best of the bunch. If you don't already have Berks of one form or another, go for this one.

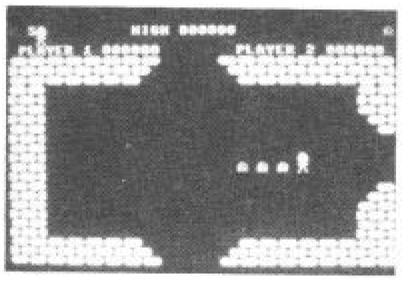
Calling all Berks fans. If you are a fan of the excellent Berks series then you won't want to miss your chance to get the fourth and final game in the series absolutely free.

Berks programmer — Jon Williams — has written *Baby Berks* exclusively for *Commodore User* readers. The game is published in listing form in our *Celebrity Book of Games* which came free with this magazine.

If you don't want to type it in it is available on tape from CRL, 9 Kings Yard, London E15. Please send cheque or postal order for £3.00. Your application must include a cut-out of this review.

K.M

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■



Tower of Evil
Commodore 16
Creative Sparks
Price £6.99

You control Andros, who I presume is male although he looks a bit like a cute little girl — graphics aren't the strong point of this game. Anyway, whatever he is, Andros has to scour the tower looking for his loved one who has been kidnapped by the wicked Necromancer. Hardly the most original theme in the world.

There are seven levels to the tower, each containing nine rooms. On each level there is a pile of gold to be collected and a key. The latter gains you access to the magic staircase which leads to the next level.

Each level also has its own horde of evil creatures, imaginatively described on the inlay as Ashtoroths, Warriors of Ayperos and Baphomets. In reality, this bunch of grizzlies turn out to be the usual nondescript graphics characters.

On reaching level seven, Andros has to dump all his gold into the Necromancer's high-interest treasure chest at which point his darling runs into his arms — a pretty lousy deal if you ask me.

Tower of Evil won't provide much of a challenge for the hardened games player. I managed to complete it in about half an hour. The less experienced might get more lasting enjoyment from it.

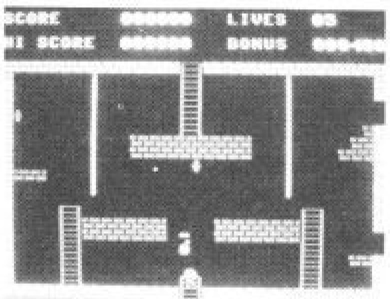
This is Creative Sparks' first game for the C16. It originally appeared on the 64 and was moderately successful.

The company have a fairly extensive range of 64 games including *Danger Mouse* and the superb *Ice Palace*.

The trouble with the above games is that they are so advanced and complex that they would lose a lot in conversion to the C16.

K.M

Presentation:	■■
Skill level:	■■
Interest:	■■
Value for money:	■■



Dark Tower
Commodore 16
Melbourne House
Price £5.95

Nobody could accuse Melbourne House of ignoring the C16. *Dark Tower* is the sixth game they've released for the machine, and a fairly ambitious one at that. In order to accommodate all 27 screens, it loads in parts, extra screens being loaded into memory during the course of the game.

As far as the fairy tales are concerned, you, Prince Harry, have been turned into a mutant by the guardian of the Dark Tower. To restore your good looks, you must visit every chamber and collect the jewels to be found therein.

The game is very much in *Jet Set Willy* mould, which means you have to attempt to negotiate a screen a dozen times before you crack the secret, but that's the fun of it after all. Things start off simply enough, but get tricky fast. The look of some screens alone is enough to put you off. My favourite is a chamber of swinging ropes which you have to cross Tarzan fashion, grabbing jewels as you go.

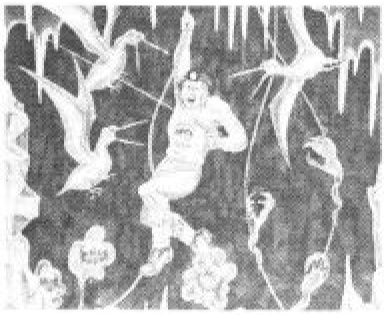
One of the better C16 offerings from Melbourne House and good value at under six pounds.

Melbourne House were very quick off the mark with the first commercial games for the C16. It was a fairly average Donkey Kong rip-off called *Roller Kong*. Nothing to write home about but it is still the only Kong game for the C16.

Other games from Melbourne House for the C16 are *Classic Adventure* — a text only adventure. *Wizard and the Princess* is a simple adventure with graphics. The one thing Melbourne House haven't done yet is a version of their classic *Hobbit* game.

K.M

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■



Cave Fighter
Vic 20 Unexpanded
Bubble Bus
Price £5.99

Just when you thought all the good games for the Vic had dried up, something excellent turns up that forces you not to write off the old micro yet.

Cave Fighter from Bubble Bus gets around the limitations of the unexpanded Vic's memory by using a clever multi-load technique.

If you manage to master the first level of this tough platform game, part two will automatically load. There are eight different loads in all.

Cave Fighter was launched originally for the 64. This Vic version will be followed by a C16 version to be launched at the Commodore Show in June.

The aim of the game is to get as far as you can into the complex of caves blasting the aliens as you travel.

It doesn't do to get too near to the aliens as they give off poisonous gasses that can kill you off without the alien even making contact with you.

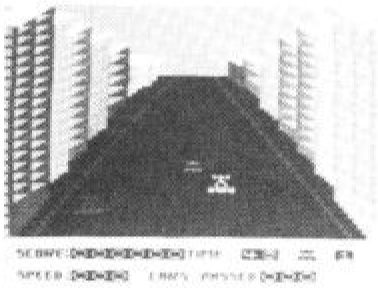
Our cave explorer is armed with an automatic laser that can be operated by simply pointing the joystick in the direction you wish to fire.

One criticism of Vic Cave Fighter is that the little man is very difficult to control. It requires differing pressure on the fire button and movement of the joystick after he has taken his leap.

I don't like games where the difficulty is controlling your character. The difficult bit should be beating the game itself — not learning how to play it.

That said *Cave Fighter* is still one of the best games I have seen for the unexpanded machine for some time. E.L

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■
Value for money:	■■■



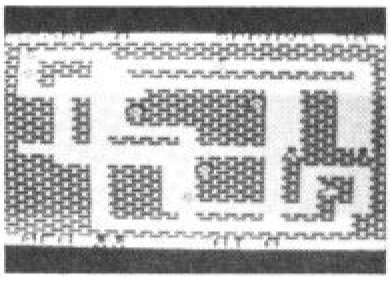
Death Race
Vic 20 (+8K)
Atlantis
Price £1.99

Atlantis have chosen a macabre insert illustration for this 3D road race program. The road is dead straight but it is in perspective. To earn the victor's laurel wreath you have to zip past 70 cars within 80 seconds; trouble is, the other drivers have obviously tanked up on the hard stuff rather than petrol causing them to wobble all over the road.

The course starts in the shadow of sky-scrapers then hammers out across a dazzlingly bright desert before reaching green fields which in turn give away to a pine forest. There's more to come as the road skirts a lake then shoots out across a bridge . . . making for another city. And so it goes on, with both night and day driving conditions. Next time round, if you have any lives left, there's a meagre 60 seconds allowed. As you accelerate up to 300mph the engine roar increases in pitch: this is not a game for lovers of peace and quiet.

Miles better than the aerial-view race games that used to plague the Vic . . . come to think of it it's pounds cheaper too. L.S

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■■■



Mosquito
Vic 20 Unexpanded
Atlantis
Price £1.99

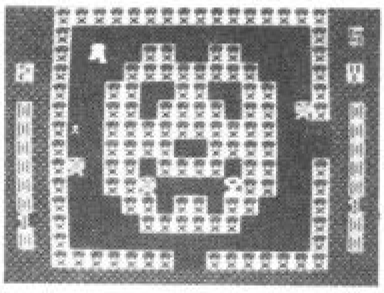
This is not the most exciting game available for the basic machine but with four screens it isn't bad. Load up and pick your way through the first maze, shove the key in your pocket and make for the door which is the cue for the next frame to flip up.

A maze would hardly be worth its salt without predatory monsters . . . these are continuously re-defined splodges, an imitation of shimmering mega-gnats, I suppose, except these don't bite they drain you dry instead. So get squirting with the fly spray. The unwary could well fall into a trap door and re-emerge near a big buzzer with no time to turn and fire.

The red brick room is a doddle but the coal cellar takes some exploring before you make good your escape 'cos you ned to discover the passages in the inky blackness. As I never completed the blue room the last screen remains an unknown quantity.

The sound effects are jolly enough but the animation is somewhat flickery. L.S

Presentation:	■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■■■



Doodle Bug
Vic 20 Unexpanded
Mastertronic
Price £1.99

I really did think the Pacman had died of indigestion, brought on by a surfeit of pached pixels, many moons ago. Now it seems the lads & lassies of Mastertronic have dished out a hefty dose of Milk of Magnesia and revived the old charmer.

This is not a straight implementation of the game that launched a bitter law suit . . . the wobbly ghosts are transmuted into blockheads (why the mighty muncher should be the same shape beats me), there aren't any power pills but turnstiles have been shoved in through which you can spin.

Unfortunately many Vics generate a pallid yellow which renders the food parcels indistinct against the white background. A choice of six tempos is offered with one to five chasers. Clear the screen and a mildly entertaining strobing effect is your reward.

I found it about as addictive as a trip to the dentist but then I've got *Jelly Monsters* if I want a burst of pacmania. *Doodle Bug* is fine if you must have a maze gobbler, but not brilliant. L.S

Presentation:	■■
Skill level:	■■■
Interest:	■■
Value for money:	■■■■■

WHAT WE ARE LOOKING FOR IN COMPUTER GAMES

Each game is marked out of five in each of four categories, but what does each represent?

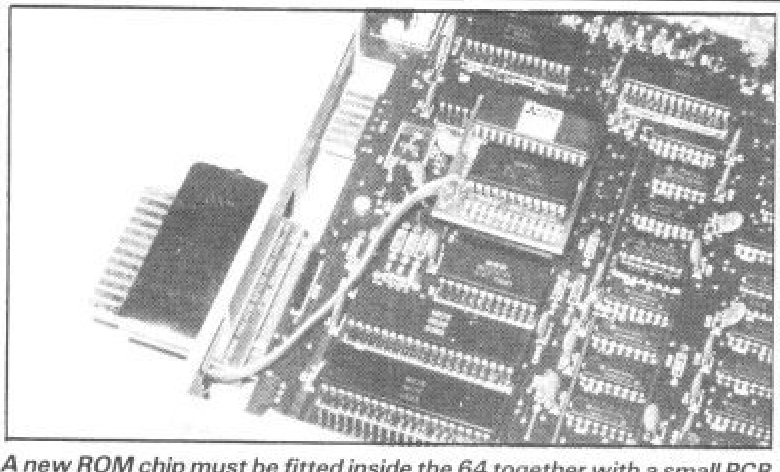
PRESENTATION
In this category we are looking for the quality of the instructions. Are the play details clear enough on the cassette inlay? Do they fairly and accurately describe the game? How good are the on-screen instructions? Do you keep having to refer to the box?

SKILL LEVEL
How much skill is required to get into, and master the game? Is it challenging? Do you need to think? Will it keep you amused for months or will you tire of it within minutes?

INTEREST
Is it yet another platform game, shoot 'em up, or tired old D&D adventure? In this category we are looking for originality, attention to detail and effectiveness of graphics? How interesting is it to look at as well as play?

VALUE FOR MONEY
Simple enough this category. Is the game reasonably priced for what it is when you compare it to other similar games?

Using my disk drive rather a lot means that I am very aware of the 'wait state' associated with every disk access on the 1541. So it was with great interest that I received the review copy of 1541 Flash!. At last, slow loading would be a thing of the past. However, unlike some fast loaders, you can't just plug in and go since the 1541 Flash! units actually fit inside both the 64 and the disk drive (see photographs).



A new ROM chip must be fitted inside the 64 together with a small PCB that plugs into the user port

LIFE IN THE FAST LANE

1541 Flash! reviewed

The 1541 disk drive is not noted for its speed of operation. Users have been known to brew cuppas or nod off while waiting for programs to load. Now, yet another device is available to speed matters up — 1541 Flash!, from Supersoft, but it doesn't come cheap at £80.

by Chris Durham

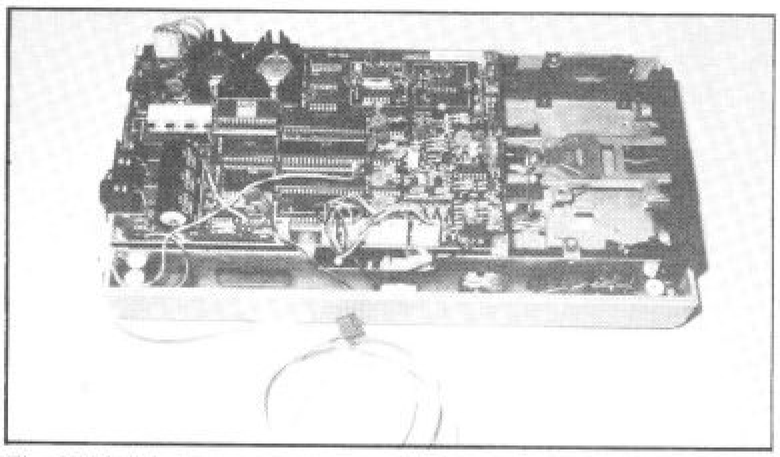
Installation

This is definitely not for the faint-hearted; it involves removing the ROM chip in the 64 and both the ROM and one of the 6522 chips in the 1541. It also requires you to bend pins on the 6522 chip, so it's not something you can rush.

The instructions I received were pre-production, and some of the information is not applicable to the UK versions of the 1541. There are also some discrepancies in the wiring colour codes mentioned, but none of these are bad enough to prevent successful fitting. It takes about 30-35 minutes to fit both lots of new ROMs plus the connections to the 6522.

Extreme care must be taken not to bend any of the pins when fitting the ROMs into the sockets; in fact the unit supplied already had a bent pin which I had to straighten and insert correctly before the unit would work.

In addition to the two new ROM chips, there is a small PCB which plugs into the user-port; it reproduces the port however, so doesn't stop it being used by other things. There are two extra cables which go from this board to the new ROMs, so you end up with two cables going to the 1541. Overall, installation is not difficult, provided you follow the instructions closely.



The 1541 disk drive gets another new ROM chip and two cables, one of which goes to the user port

Using the 1541 Flash!

The unit is said to give a threefold speed increase and it is close enough not to quibble. It is possible to go on using the drive as normal and just get the advantage of faster loading and saving. However, there are a number of additional Disk Operating System (DOS) commands built into the new ROM to allow abbreviated commands to be used.

There are also extra editing commands and some advanced programming commands to allow machine-code access to 1541 Flash! plus a debugging facility.

If you want to revert to 'slow-mode' this can be done easily without turning off the computer; restoring 'fast-mode' is just as easy. Both can be done within a program if required. There is a hardware 'off' switch on the PCB which will turn off the new ROM commands, but this only affects the 64; you still have to send the relevant command to the 1541.

Compatibility

Obviously there is little point in having a fast-loader system if it won't work with all your software. So far it has worked quite happily with a variety of programs, including ones which use interrupts and install their own 'wedges'.

The only type of programs that resolutely refuse to work are disk copier programs; so back-up copies cannot be made. This latter fault is rather annoying since you cannot remove the 1541 Flash! very easily and switching it off has no effect; copiers just crash, presumably because they are trying to access the original ROM commands which have been altered slightly.

Since I normally make archive copies of all my disks for safety, this rather defeats the object of having a fast disk; instead of copying an entire disk in one go I have to copy one file at a time.

I have also experienced one or two problems with non-loading and false error messages. These usually occur immediately after the computer and 1541 have been switched on; a second attempt usually works. This has occurred with cartridges too, the answer being to switch off, then on again; this may just be a fault on my particular unit though.

Conclusions

1541 Flash! is a useful device for speeding up access to the disk drive. Installation does require quite a lot of care and once installed it is not easily removed. Of course, the advantage of being installed inside the machines means that it does not block either the cartridge port or any other port, leaving them all free for normal use.

It works well with the majority of software, but some programs that use the direct access DOS commands may need amending. Whether it represents good value for money at £80 is another matter. There are much cheaper units on the market and the extra facilities the 1541 Flash! offers may not justify the extra cost.

- 1541 Flash!
- Supersoft
  Winchester House
  Canning Road
  Wealdstone, Harrow
  Middx HA3 7SJ
- £80
- very fast but very expensive

We're reviewing a similar device next month, a cartridge from the American Epyx company. At £50, it's much cheaper and less fuss.

MEGA HITS



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THE COMMODORE PERSONAL COMPUTER

More than just an IBM clone?

Commodore hopes that its new Personal Computer will grab a chunk of the business-micro market that IBM has dominated for so long. But if you can't beat IBM, you join it by building a 'compatible' machine. Like many others, Commodore has done just that, but more cheaply. Karl Dallas finds out how the new machine performs.

by Karl Dallas

The Background

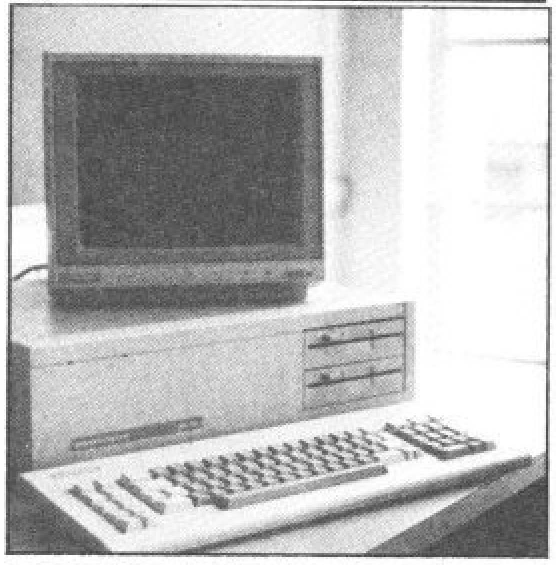
Commodore made it big in the business world with the now-venerable and obsolete 8000 (or Pet) series. Since then, they've tried regularly to crack the lucrative business market, but have never quite succeeded. The 700 series that followed the Pet was a nice concept but didn't work as planned (not to mention the 500). And the 8296, with its purported 128K memory, was a bit of a con since it was really a doubled-up 64K machine.

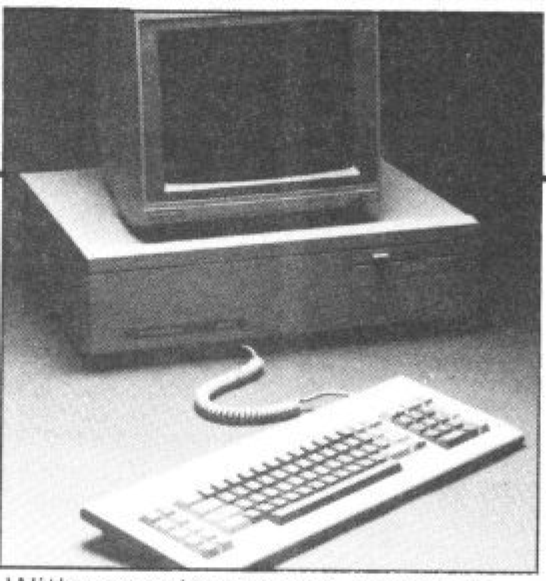
More recently Commodore played around with a Hyperion look-alike, a portable micro that Commodore bought (and adapted) from the American firm Bytec. Not that it wasn't a nice machine, it just wasn't 100 per cent compatible with the IBM PC and it was limited to 256K. Business software these days hungers for much more memory than that.

So why produce a clone of the top-selling IBM PC? It's recognised that if it wasn't for those three magic letters and IBM's corporate clout, the IBM PC would now be suffering rigor mortis. Its keyboard is clumsy, it has the old-fashioned 8088 chip and it's much slower than the Compaq (8086 chip), its nearest rival.

The answer lies in software. Confidence in IBM ensured an explosion in software availability for the IBM PC and its clones. Software houses take some persuading to write for a non-IBM disk format. To succeed, therefore, Commodore had to make its new PC run that huge and ready-made library of IBM PC software. In short, it needed to be, and is claimed to be 100 per cent IBM compatible.

The PC-10 has the standard configuration of two floppy disk drives and 256K of RAM
Below: the PC-20 replaces one of the floppy disk drives with a 10 megabyte Winchester hard disk





The Commodore PC comes in two versions: the PC-10 with the standard 256K RAM, and the PC-20 with its 10 megabyte internal Winchester hard disk.

Exterior looks

Both machines look identical from the outside, each having the same huge and very square system box, measuring a massive 490mm by 390mm. This, we are told, is for the hard disk — whether it's in there or not. With a monitor on top, the whole caboodle looks rather out of proportion. Both models have twin 360K floppy disk drives at the front-right of the box. Round the back, there's the power switch, five expansion slots, a parallel and a serial port.

The keyboard is nice to use despite conforming to the unhappy IBM 'standard'; at least it doesn't have the IBM's tinny feel. Similarly, the green-screen monochrome display supplied with both units is nice and easy to read, without the irritating phosphor after-glow that disfigured some of the early 700s. There's also a colour monitor, ▶

THE COMMODORE PERSONAL COMPUTER

but that was not yet available at time of review. More about colour later.

Inside the box

Sadly Commodore has opted to conform with the IBM PC's slow 8088 central processor, running the MS-DOS operating system (which even IBM is ditching). It could and should have gone for the 'true' 16-bit and faster 8086, especially since the industry is all set for another leap forward in operating speed. There's also room for an optional 8087 arithmetic co-processor.

Board layout is neat and sparse, testimony to the progress that's been made in computer design since the IBM PC was launched two years ago. There are five expansion slots, one occupied by the video controller.

Unlike the IBM PC, these don't have to be used to expand memory. Eighteen small chip sockets are provided for this, allowing a maximum of 640K. That leaves the expansion sockets free for things like colour and specialist graphic cards. Also inside, there's a speaker which transmits a slightly unpleasant triple warble when the machine has completed its self-diagnostic routine on power-up — not half as nice as the bell on the 8000 series.

Colour and graphics

One major difference between the Commodore and IBM PCs is that the former has a more versatile colour card. Like the IBM, it offers 40 columns by 25 lines in 16 colours or 80 cols by 25 lines in 16 colours. There's the same three graphics modes: 160 by 100 pixels in 16 colours, 320 by 200 pixels in four colours or a high resolution 640 by 200 pixels in monochrome.

But, in addition, it supports four more graphics modes: 160 by 200 pixels in 16 colours, 320 by 200 pixels in 16 colours, 640 by 200 pixels in four colours and a staggeringly hi-res 640 by 352 pixel monochrome display.

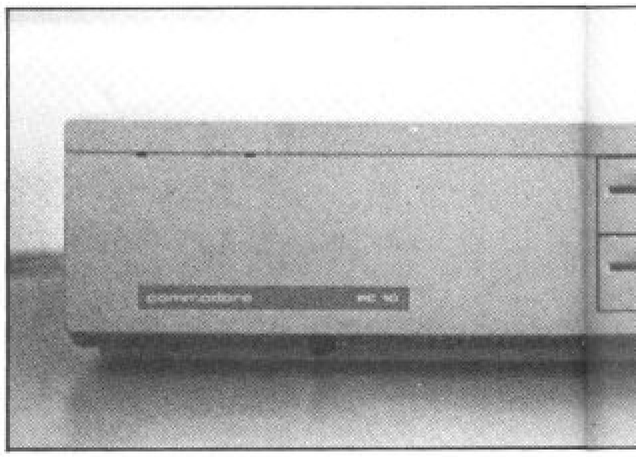
Obviously that's exciting but I doubt if software houses will take advantage of these special facilities as they wouldn't run on the IBM or its many clones. Unless Commodore itself provides software that uses it, the whole lot may become just excess baggage.

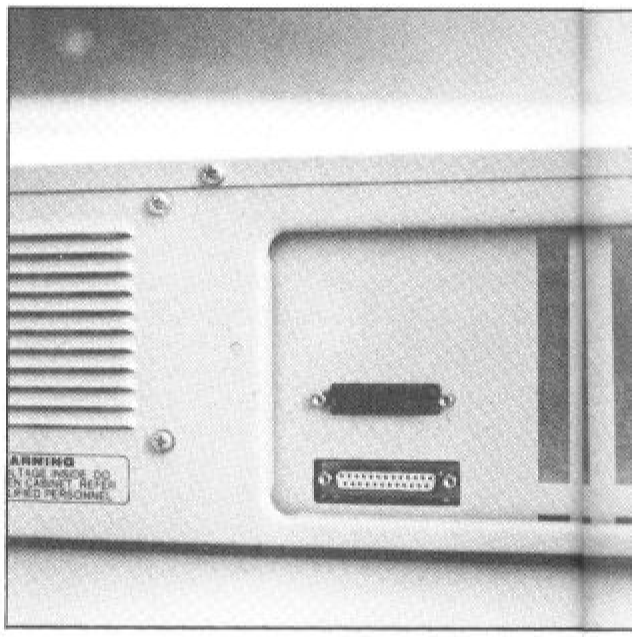
RAM disks and Winchesters

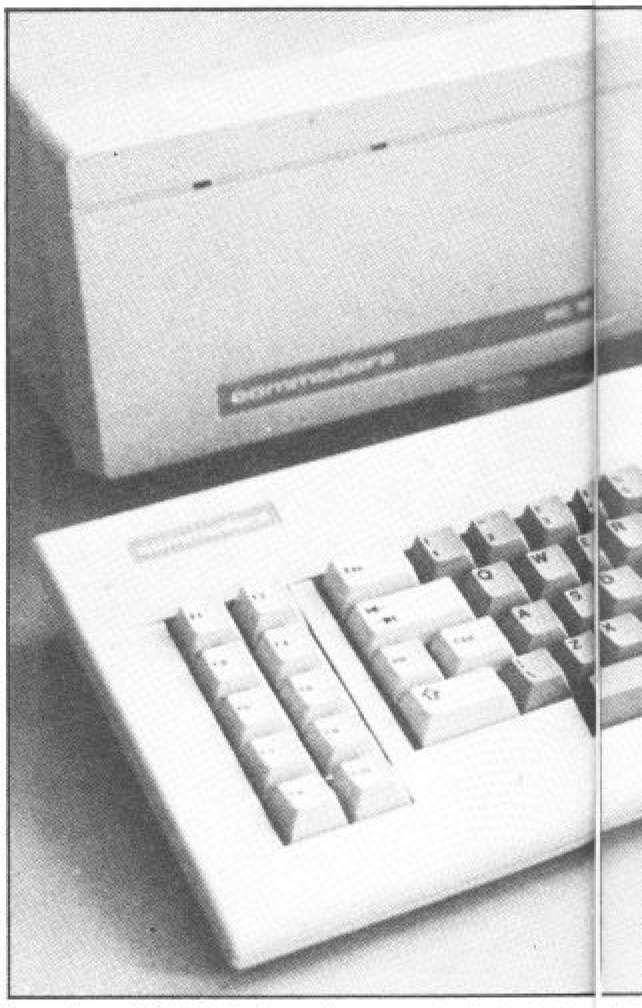
The Commodore PC's RAM-disk facility makes it possible to allocate any amount of user memory to a "third drive", labelled 'C'. That allows you to store files from disk and access them at very high speeds. Thus, on the

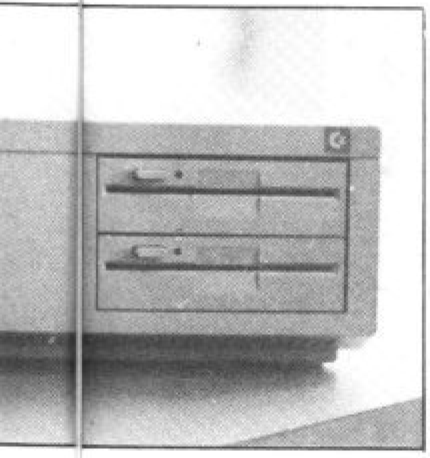
Commodore PC Specifications

	PC-10	PC-20
cpu:	Intel 8088	Intel 8088
	(optional 8087 maths processor)	
Memory:	256K RAM	256K RAM
	(expandable to 512/640K RAM)	
ROM:	8K	8K
Disk drives:	2 by 360K	2 by 360K 10MB 5.25ins hard disk
Interfaces:	parallel/serial	parallel/serial
Operating system:	MS-DOS 2.11	MS-DOS 2.11
	(also available: CP/M, Concurrent CP/M, Coherent)	
Languages:	GW Basic	GW Basic
Display:	12ins monochrome 14ins RGBI colour	12ins monochrome 14ins RGBI colour

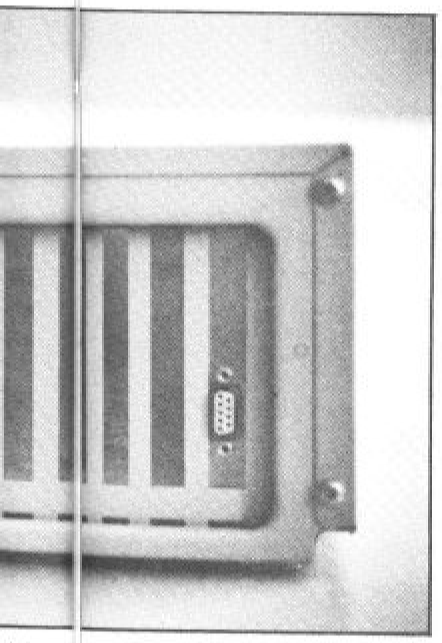

The PC has a massive and very square system box th abs desk space


Round the back there's five expansion slots, a serial a pa

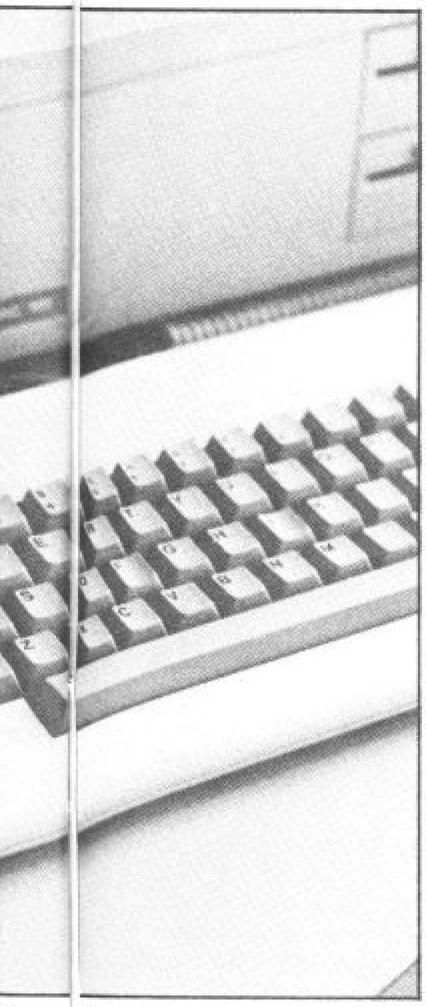

Not quite an IBM PC keyboard but very similar in design d ke



ox that grabs more than its fair share of



rial and a parallel printer port



sign and key layout

512K machine I was using, I could partition off 200K in which to store WordStar and its various overlay routines, making its constant disk access much quicker and less cumbersome.

I didn't get the chance to try the PC-20 with its built-in Winchester, but the 10 megabyte drive, so I'm told, has a data transfer speed of 500KB per second. It's also possible to attach two 70 megabyte drives externally — though Commodore has no immediate plans to market them. Perhaps some independent suppliers will take the opportunity.

Software and prices

As a PC clone, the Commodore PC ran every piece of IBM software I could throw at it. It even coped happily with an MSX program saved in ASCII format (the portability of data files and even some programs between MS-DOS and MSX-DOS is just one aspect of the IBM/MS-DOS story which few British commentators have picked up on).

I didn't get the opportunity to run benchmarks, but performance seemed up to IBM standards — and a lot faster than the 8000 series.

P and P Micro Distributors, now appointed as a Commodore PC distributor, has already published a substantial 34-page software catalogue that covers all the major 16-bit software packages, including the 'integrating' ones like Lotus 1-2-3 and Ashton Tate's Framework. Getting just the software you want should be no problem.

And now for money matters. At only £1675 for the basic 256K machine, I imagine the price will be this machine's real attraction — though £2795 for the PC-20 is a little less competitive. And no prices were available for the cost of RAM expansion chips.

Conclusions

The fact that the Commodore PC is a little more than an IBM clone will come as a pleasant bonus rather than the main buying decision, which must simply be that the price is right, especially for the basic 256K version.

Growing With the 64

Continuing our series on using the Commodore 64 in small businesses, here's a heartwarming story about a Surrey plant nursery and how it's managed to set up a useful computer system — but not without a shaky start.

by Ken McMahon

Windsor Farm Nursery doesn't look after tiny-tots but baby plants. It's situated in the heart of what you might call the 'garden gnome belt', just outside Godstone, in suburban Surrey. The business has been in the hands of the Cottingham family since it was started in the 1950's by Percy Cottingham. In those days its sole concern was the production of compost for the wholesale market (where there's muck . .) but from its modest beginnings the business has expanded both in size and complexity.

As well as compost production the Cottinghams (brothers Edwin and Harold and their wives Rosemary and Christine) run a contract landscaping business and produce plants and shrubs which they supply to other garden centres as well as their own thriving retail outlet.

With all this entrepreneurial activity going on it's not difficult to see where a computer might come in handy, so I asked Edwin Cottingham what it was that first made him consider computerising the business. "Quite honestly, I was becoming fed up with training office staff only to have them leave. We would employ a secretary, train her, and then after six months she would leave. Then we had to go through the whole business all over again.

"So I thought that if we bought a computer to deal with the accounts, word processing etc. it would solve that problem. And, of course, pay for itself in terms of the saving in salary".

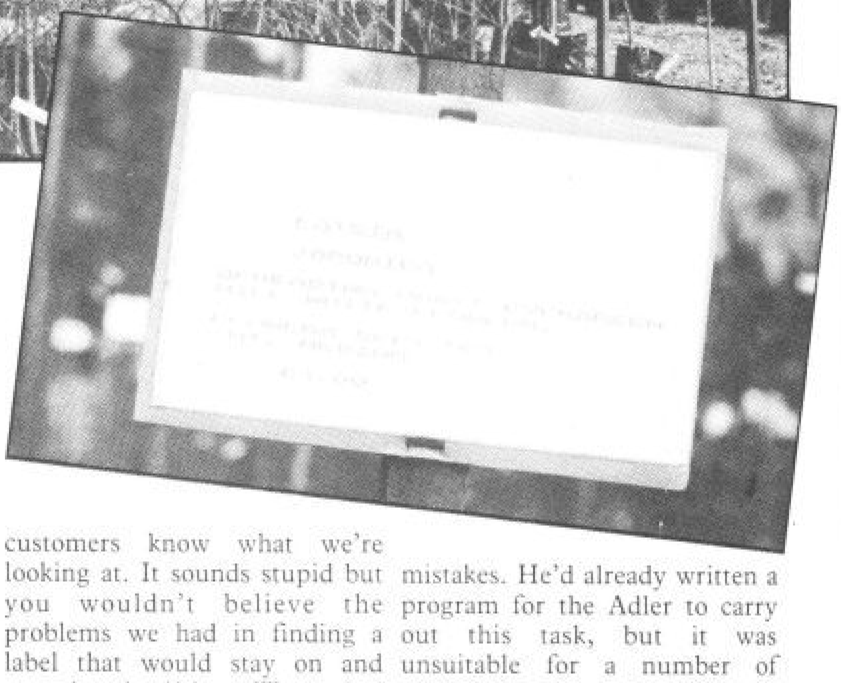
Human substitute

Replacing a secretary with a computer proved to be a more difficult operation than expected. Impressed by a demonstration, they decided to invest £5,000 in an Adler P2 — a 48K business micro with dual disc drives. This pocket-busting package included word processing software and an accounts program which was to be adapted to their specific needs.

Their problems began when the software — seven discs of it — turned up without a manual or any hints as to how it should be operated. To date, their numerous approaches to the company concerned have not remedied this sorry state of affairs.

Problem number two was that, having mastered the software through guess-work, they discovered that it didn't work satisfactorily in all respects. For example, VAT calculations were often incorrect and the promised adaptation to the software didn't work. Once again, despite contacting the company, the situation was never remedied.





Getting the 64 to print your labels saves a lot of time

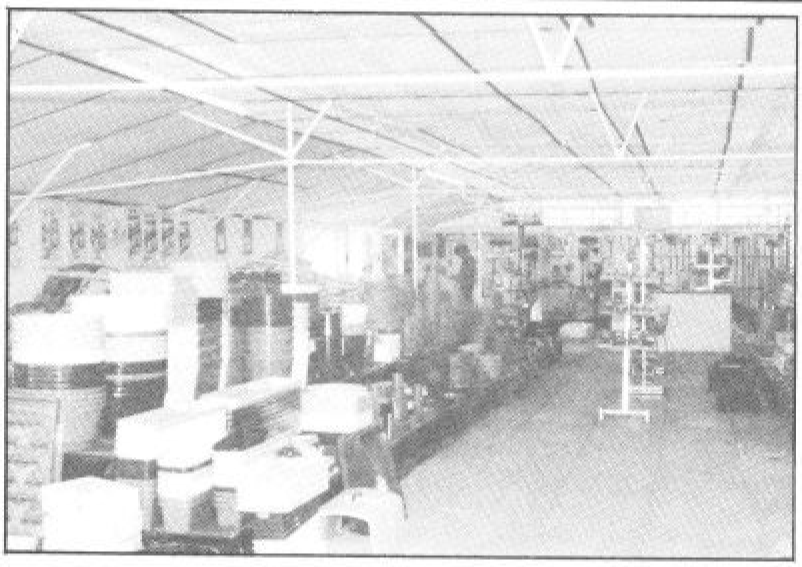
Make a fresh start

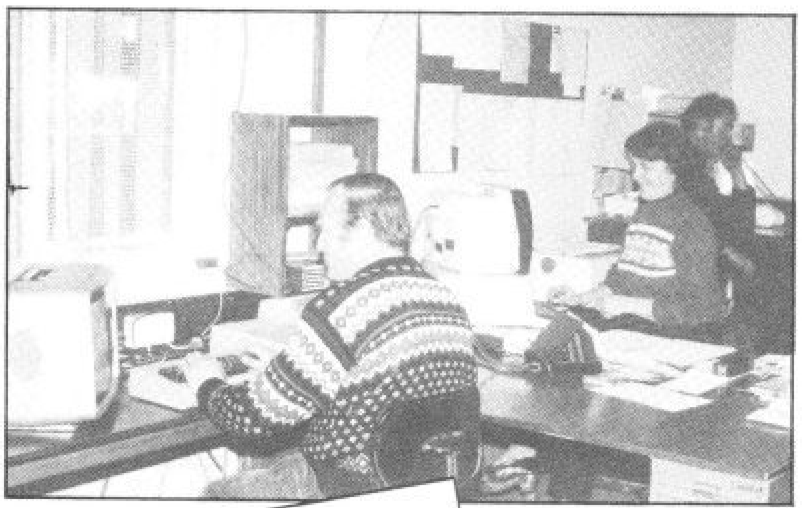
What all this messing about prompted Edwin Cottingham to do was not, as you might expect, to dump the whole lot in the bin and forget about computerisation. He just started afresh with a new computer and a new application.

"For a long time we'd been trying to overcome the problem of how to effectively label our stock so that both we and the customers know what we're looking at. It sounds stupid but you wouldn't believe the problems we had in finding a label that would stay on and remain legible. We tried everything from felt markers to Dymo tape, but nothing was really adequate".

Harold saw that this was yet another job ripe for computerisation, but was determined to steer well clear of his previous mistakes. He'd already written a program for the Adler to carry out this task, but it was unsuitable for a number of reasons.

The daisy wheel printer meant that labels could be of only one size and typeface. Also, at certain times of the month, the Adler would be tied up with the accounts so the labels had to wait.







"If we could do it all again, knowing what I know now, I would certainly consider the Commodore again"

So the only answer was another computer and printer which would let Edwin print labels of varying sizes as and when required.

Hardware for the nursery

A trip to a local dealer in 1982 seemed to provide the answer: A Commodore 64 and 1541 disc drive hooked up to an Epson RX80-FT printer. The choice of computer was largely determined by Harold's preference for BASIC 2.0, which he describes as being 'more user friendly' than others, such as that found on the BBC. Possibly it bears more of a resemblance to the Adler's Basic than some of its less conventional rivals.

The nursery's large variety of stock — literally thousands of different plants and shrubs — required a reasonably large memory, which the 64, backed up by disc seemed well equipped to provide. The last remaining hardware requirement, variable print size and typeface, provided no problem for the versatile Epson.

On the software front, Edwin decided to go for the Do It Yourself approach. He'd already been bitten with the Adler. Perhaps more importantly, there was precious little business software to be had for the 64 in those early days. Even today, the likelihood of finding a commercial package to suit the nursery's specific requirements is slim.

But the results can be seen all over the nursery. The rectangular white labels suspended on poles in neat, regular lines give it the morbid appearance of a military graveyard. But to see the 64 in action I went to Edwin's home, conveniently situated just round the corner, where the bulk of the labelling operation is carried out.

DIY programming

Harold's approach to the problem was to write a simple file-handling system which holds up to fifty items on one file, stored on disk as a sequential file. Although the 64 has enough memory to hold much larger files, the fifty item limit was imposed to speed up data transfer from the relatively slow 1541 disc drive.

Each item is stored as a string and is separated into five fields which hold information such as the name, a brief description, the height, and the price. The program is menu driven and offers many of the facilities you expect on a good database. The whole file can be listed to the screen or individual items can be output and altered — so you can change prices easily.

Again, the whole file can be listed to the printer, or for labelling purposes, a single item can be printed any number of times onto continuous stationary.

Two kinds of label are produced: a large header label describing what's to be found in a particular plot, and smaller labels for the individual items. Provision has also been made in the program for stock control, although, due to programming difficulties, this is not yet fully operational.

Edwin confidently assured me this was purely a question of time, probably a job for the winter months when business is less hectic. When complete, it will enable the firm to keep track of movements of stock in and out of the garden centre, as well as providing useful sales statistics.

Sorting out the bugs

The program isn't the most smooth running, user-friendly piece of software I've ever seen. Sometimes it hangs up, only to be restored by the hasty input of a couple of lines of Basic.

But Edwin is quick to defend his brainchild. "The thing about writing your own programs is that when they go wrong you usually know where and why, so it's a simple matter to put things right."

His point is a valid one. The program works well enough in that it does the job it was designed for. In fact, his sales have increased significantly since the sytem was introduced. And he's saved time by not having to write thousands of labels by hand each time prices increase or the ravages of the English climate destroy the old ones. Epson print is remarkably permanent!

Future plans

Edwin is keen to extend it until every plant and shrub in the nursery is labelled, a mammoth task given the size of the stock. But does he plan to use the 64 in other areas, and what has he learnt from his mixed experience with computerisation?

"I was very interested in producing large, supermarket-type posters advertising special offers and that kind of thing. But so far, I've not been able to find the software to do the job.

"I tried Poster Paster by Bubblebus but couldn't get it to work with the Epson printer. I've also spent a good deal of time typing in an accounts program from a business applications book but I'm also having problems getting that to run. At the time we bought the Adler I had never touched a computer in my life, so I suppose I was greener than most people (I ignored the pun).

"If we could do it all again, knowing what I know now, I'd certainly consider the Commodore again. It really would have been worth buying three: one for labelling, one for the accounts and one for word processing, perhaps all sharing one printer. The only drawback of the Commodore system is the disc drive — it's not really fast enough for business use."

Conclusions

Whilst Windsor Farm Nursery's experience of commercial business software may not be typical, it's certainly the case that, for first time buyers, choosing the right micro and software is anything but easy. Mistakes can be costly, both in terms of money and wasted time.

The Cottinghams have shown that, for certain applications, your own software running on a Commodore 64 can do the job just as well and for a fraction of the cost.

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BOOK Corner

The most useful books we've found for the Vic and 64. Most by the founding editor of Commodore User.

The Complete Commodore 64: Dennis Jarrett

Another excellent book – covering all the angles of the 64; business as well as pleasure to help both beginners and experts alike.
It also contains valuable information if you're using disks, printers, modems and colour monitors with your system. A must!

Commodore 64 Subroutine Cookbook: David Busch

For would-be programmers everywhere. It's concise and accurate with excellent line-by-line descriptions guaranteed to turn you into an expert.

The Good Computing Book For Beginners (3rd edition): Dennis Jarrett

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Now you're talking: Currah

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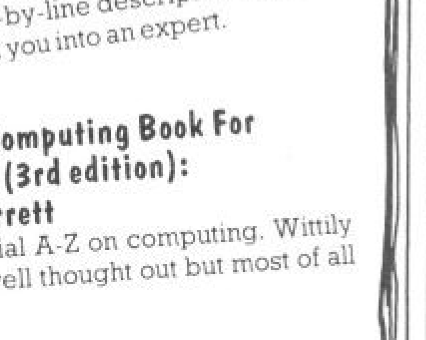
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Item	No.	Price	Total
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OSIRISAN 64 DISK ASSEMBLER	no.☐	at £ 22.95 =	......
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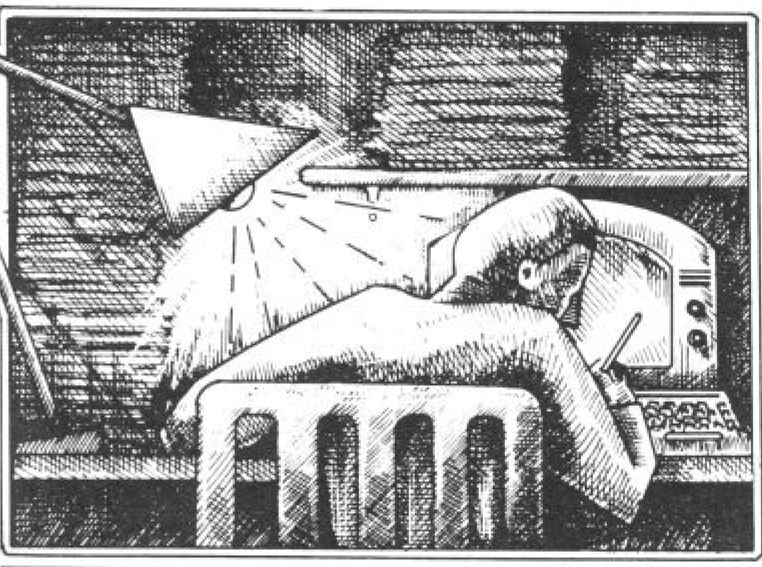
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Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

KEY REPEAT

***Dear Tommy*, I got February's issue of *Commodore User* and typed in the key repeat POKE 650,255 in the Letter page. What I want to know is how to disable the POKE and return my 64 keyboard to normal, as the keyboard now produces rubbish when a key is pressed.**

The way to return your keyboard to the normal repeat mode is by keying in **POKE 650,0**. However, the first time you turned your machine off, the effect of the POKE 650,255 will have disappeared.

If your keyboard is producing rubbish as soon as you switch the machine on, then you have a faulty machine and need to take it back to the dealer (or send it off for repair if it is out of warranty).

DOUBLE DRIVES

***Dear Tommy*, In March issue, you stated that ". . . . you cannot run two single drives together for longer than about 12 minutes before they hang up." Horror! I have very recently been given (present) a second 1541 disk drive, but haven't used it as yet.**

I phoned Commodore at Corby on this matter, to be told "Oh no sir, we don't know of any problem like that," followed by a number of suggestions such as, try it! Commodore weren't alone in suggesting this illogical solution.

Anyway, I would very much appreciate a fuller definition of the problem, as I'm sure other users (and Commodore) would as well.

Unfortunately, Commodore do not acknowledte that there is any problem with running two 1541 disk drives together; nevertheless, I have personal experience of the problem. I have tried a number of different drives together, but the problem always occurs sooner or later. You really only need to use two drives if you have a large storage problem where you need to load the programs from one drive and store the data on the second drive.

However, the point I was making is that it usually occurs after the drives have been in **continuous** use for longer than about 12 minutes; eg when compiling a Basic program using Petspeed or an equivalent.

Short accesses of either drive rarely cause the problem. The answer is therefore dependent on what you are going to use your two drives for. Just having both drives plugged in will not cause a hang-up *provided neither drive is run for more than about 12 minutes at a time.*

VIC DATABASE

***Dear Tommy*, Please could you tell me if there is a program for the Vic-20 to store types of coins, countries, year and value, and then restore them back to the screen. I have a 16K expansion if required.**

What you need is a database-type program. You don't say whether or not you have a disk drive; something which is fairly essential if you have a database of any size, otherwise a tape-based system becomes extremely slow.

However, assuming you don't, the following two programs might be suitable: **Vicfile** from Commodore costing £24.95 (needs 16K RAM pack) or **Vicat** from Audiogenic at £8.95 which is really just a catalogue system (which may be all you need).

I suggest you see if your local dealer has either in stock and ask for a quick demo.

NO VIC UPGRADE

***Dear Tommy*, I have recently been given a second hand unexpanded Vic-20 in good working order.**

Being a complete novice, could you please tell me if there are any packages currently available to upgrade the machine to the capabilities of say a '64', or is the maximum expansion available 32K?

The first thing to say is that you *cannot* upgrade a Vic-20 to the specification of the Commodore 64; the facilities of the latter are too different. The actual *expansion* capacity of the Vic is only 27.5K, because you lose the bottom 3K expansion area (for Basic anyway) as soon as you expand over 8K.

Although you will see adverts for 64K RAM boards, only part of this memory can be accessed at any one time.

PECULIAR DRIVE

***Dear Tommy*, Disc drives again — could you help me? I have got a double drive, type:- COMPU/THINK DSK 800K KP2 with a suitable interface could I use it with my 64? If so, would the discs available for the 1541 be compatible?**

Being able to use just any disk drive with Commodore machines has been a dream of users for ages; and that is what it will remain, a dream.

To my knowledge, no suitable interfaces have been produced that allow standard drives to be used with the 64. I had seen one brief announcement of a system to allow a particular drive to be used on any machine, including Commodore's, but it has apparently sunk without trace.

The main problem is that the Commodore drives are 'intelligent'; that is the Disk Operating System (DOS) is in a ROM on board the drive itself. Most other computers have the DOS loaded into the computer and can therefore access *almost* any 'dumb' disk drive, since the DOS can be altered to cater for the different requirements.

DIRTY HEAD

***Dear Tommy*, I use the disk version of the Easyscript program. Most of the time this loads without trouble but occasionally I get repeated failures. After trouble-free periods of up to two or three months I then get several days when I have to try up to a dozen times before the program loads correctly.**

The failures take a variety of different forms: sometimes I get error message 27, most often the screen just goes blank and the disk drive stops, and sometimes (and this is the most infuriating of all) the program appears to have loaded properly but on the first command (such as 'file') the system just freezes up.

I very rarely have trouble with other disks so I assume that the 1541 is OK; on the other hand since the program loads satisfactorily for months at a time it does not seem that the disk can be at fault. Please can you suggest a reason for this unreasonable behaviour; with the time that the 1541 takes to load a program it does not improve the temper to have to switch off and try again even once let alone a dozen times!

It sounds very much as thought you are getting problems from dirty heads. If you use the Easyscript disk more than the others then the disk may be starting to wear slightly and you will get an oxide layer building up on the read/write head. This could certainly account for the erratic errors and loading a program that was *almost* right.

The solution is to buy a head cleaning kit and use it regularly. There is a certain amount of cleaning action on the heads just by being in contact with the disk. The particles are then trapped by the lining of the diskette, hence you sometimes get trouble free loading after a bad patch. The only reliable way of getting consistent results however, is to clean the heads before the build-up can occur in the first place.

PROGRAMMERS AID

***Dear Tommy*, I have recently bought a mother-board for my Vic-20 and find that when I have more than the nominal 3K memory (up to 28K in fact) I cannot use the Programmers Aid Cartridge — it seems to take up 3K of memory. When I try to activate the cartridge nothing happens. Am I intruding on the available memory?**

Is there any way I can reconfigure the memory so that I can use the Programmers Cartridge?

The Programmer's Aid cartridge normally fills the memory slot in Block 3 (i.e. the third 8K RAM slot). This means that you cannot use more than 16K RAM expansion with this cartridge. If however, you are having problems when you have *less* than 16K plugged in then I suggest you may have a faulty cartridge, in which case a check by your dealer would seem to be the best bet.

Also, do make sure that any switches on the mother-board are set correctly to allow the cartridge to be accessed when you have others plugged in — some motherboards allow you to select only certain sockets.

VARIABLE PROBLEM

***Dear Tommy*, I've built a useful little 'Upcoming Dates' program for my 64 whereby I punch in today's date, and the screen shows (rolling at one day a second) whose birthday's coming, when the rent's due, and so on.**

Converting today's date into a number from 1 to 365 took a few simple lines. But the next step had to be 365 lines such as (for 1 January) "10010 IF X = 50010 GOTO 50010". What's wanted is a simple "GOTO X", which of course doesn't work, though I've tried many ways round it. Is there a way of using a variable as a GOTO number?

The only easy way of getting a 'computed' GOTO is to use an ON X GOTO, but to do 365 values would still take a number of lines. However, if you want to do it that way then you can use the fact that if the value of X is greater than the number of choices, it 'falls through' to the next line. The following example shows the code needed:

```
100 ON X GOTO 1000, 2000,
    3000, 4000, 5000
200 ON (X-5) GOTO 6000,
    7000, 8000, 9000, 10000
300 ON (X-10) GOTO 11000,
    12000, 13000, 14000, 15000
```

Thus X can be any value between 1 and 15. How many line numbers you get per line will depend on their size, but you should manage at least 11, which would reduce the number of lines from 365 to just 34. However, this is still rather an inefficient way of achieving the object. Without knowing how you store your data it is difficult to be precise, but assuming you use a string array of some sort why not use that fact to use a loop rather than dozens of GOTOs.

By storing the information for day 6 in element 6 of the array you can output a scrolling screen merely by printing the array elements in order. Since the code to print each string is presumably the same this can all be incorporated in the loop. The start value is today's date converted into your number between 1 and 365 (X) and your limit value is the end of the month or a fixed number of days displayed, whatever you want. For example:

```
100 ENDX = X + 30: IF
    ENDX > 365 THEN
    ENDX = 365
110 FOR DAYS = X TO
    ENDX
120 PRINT DATE$
130 PRINT LEFT$ (MSG$
    (DAYS), 40)
140 PRINT RIGHT$ (MSG$
    (DAYS), 40)
150 NEXT DAYS
```

This would allow you to print 2×40 character lines for each day, with any pause being inserted between lines 140 and 150.

BUYER'S GUIDE

***Dear Tommy*, Please could you give me some advice about buying a disk drive for my Commodore 64. I have heard the 1541 is rather unreliable and slow. So I want to purchase a different one.**

I've also heard that Commodore are producing a different drive for the 64 soon. If so could you advise me when it is coming and how much it will cost and if it is any good.

Finally what is the main Commodore user club, please could you give me an address, thank you very much and congratulations on a good publication.

Yes, the 1541 drive is rather slow, but this is partly due to the serial bus which connects it to the 64. There are however, a number of "speed-it-up" devices on the market such as the **1541 Flash!** from Supersoft and the **1541 Express** from RAM Electronics. Prices range from £80 for the former to £50 for the latter, with both giving speed gains of about three times.

As for the unreliability factor, it really depends on how much you are going to use your drives. The average hobbyist should get a couple of years use before starting to get faults, but if you are going to subject them to heavy use (nearly every day for several hours) then you will probably be lucky to get nine months trouble free use.

Of course, if it goes wrong under warranty you can get it repaired free, but the very fact that it is heavily used normally means inconvenience if it takes the usual 6 weeks to get repaired by Commodore!

The new drives which have been announced are the 1542, designed for use with the 16 and Plus/4 and the 1571 which is for the new Commodore 128. The latter drive is definitely not available yet, but I haven't seen too many of them about! However, neither of these will run any faster than the 1541 and their reliability has yet to be tested. My advice is to stick with the 1541 at present since I assume you do not want to go to the expense of a IEEE parallel interface with a twin 8250 drive.

The main Commodore user club is ICPUG, the **Independent Commodore Products User Group**. They can be contacted by writing to:

Jack Cohen,
Membership Secretary,
ICPUG,
30 Branchester Road,
Newbury Park,
Ilford, Essex, IG2 7EP.

remembering of course to enclose a SAE, or telephone 01-590 8849 for more details. Subs are £10 a year which includes access to a free software library amongst other benefits.

CURSOR SPEED

***Dear Tommy*, I notice that on some computers, the cursor travels across the screen faster than with my Commodore 64, and on others it seems to move a lot slower. Is there any way I can control or alter the speed of the 64's cursor?**

There's quite a simple way of controlling the speed of your cursor which involves a direct POKE command.

Type in: POKE 56325, XX — where 'XX' is any number from 0 to 255. If you PEEK the same location, you'll see that the normal value for 'XX' is 58. It follows that the lower the number, the faster the cursor will move. Inputting a higher value will slow the cursor down.

SCREEN CLEAR

***Dear Tommy*, When I was using my now part-exchanged Vic, the screen did not blank when I was loading and saving with the datasette. Now that I've moved up to the 64, I notice that all I get is a blank pale-blue screen during these operations. This is rather disconcerting. Can you explain this mystery for me?**

The simple answer to your question is that the 64 actually turns off the screen when using the datasette to avoid interference by the Vic II chip during cassette operations.

The video chip grabs control over the computer at unpredictable intervals to service its own needs. Because of the processing delay this causes, the VIC chip would actually disrupt the exact timing routines used when loading and saving. So it must be disabled during these operations.

DIP SWITCHES

***Dear Tommy*, I'm thinking of buying a non-Commodore printer for my computer but hear that even after I've bought an interface adaptor, I'll have to fiddle around with DIP switches. Could you tell me what they are and what they do?**

DIP stands for Dual In-line Package which is the standard pin spacing scheme for chips. DIP switches get their name because they fit on to the board in exactly the same way as chips do on the main circuit board.

To find out how to set DIP switches, you'll need to consult the relevant section in your printer manual. Generally, they control things like character sets, paper length, perforation skip-over, line feed and a load of other things. You'll just have to experiment with them to get what you want. Don't worry: setting them incorrectly won't do any internal damage.



Make with the Mogwai

Youngsters who couldn't bluff their way past the commissionaire to see the movie can at least get to share the screen with Billy, Gizmo and Stripe in Brian Howarth's pretty faithful adaptation of **Gremlins** for Adventure International — and in no time at all join in the fun of trying to liquidate the cuddlesome carnivores terrorising Kingston Falls.

It's hardly surprising that AI should latch on to another hot property given their own success already with *The Hulk* and *Spiderman*, and Activision with *Ghostbusters*. What is interesting is that Scott Adams himself doesn't seem to have taken a hand in what is obviously a very important title to AI this year and that its creation should have been entrusted instead to a true Brit.

Still, it will be remembered that AI have already shown their faith in Brian Howarth's work, having snapped up the rights to his numerous earlier Mysterious Adventures — such as *The Golden Baton* and *Ten Little Indians* — when Howarth's original publishers, Channel 8, hit trading problems.

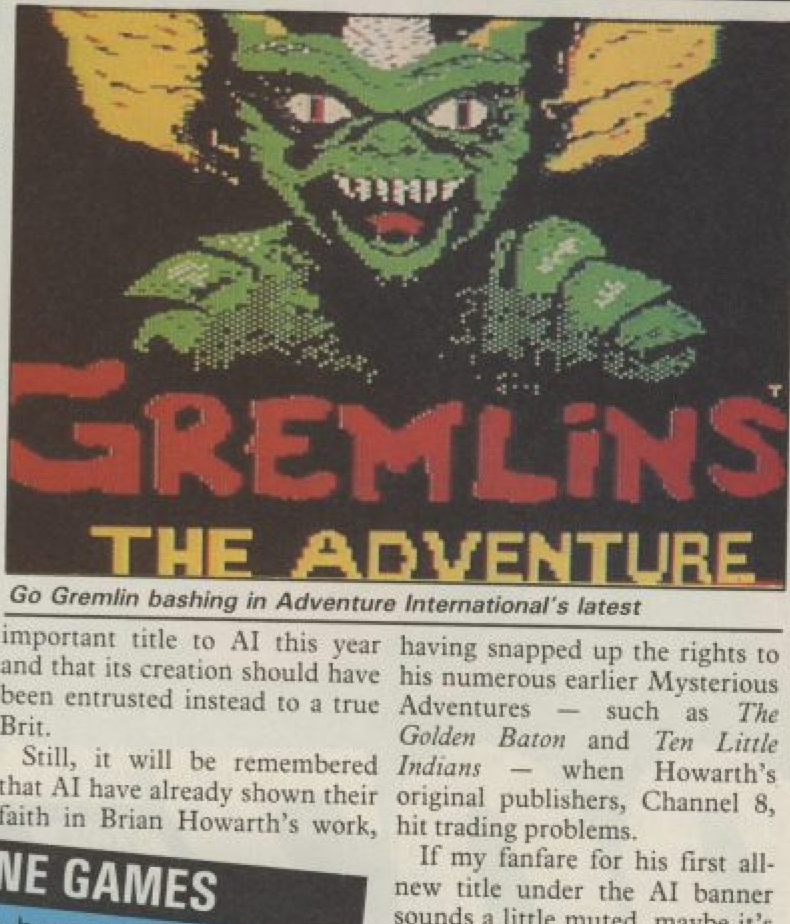
If my fanfare for his first all-new title under the AI banner sounds a little muted, maybe it's because I'm not too sure whether *Gremlins* does all it should to enhance this author's well-earned reputation. For a start, the player first finds himself being constantly dispatched by a dart-throwing Gremlin in one room and knocked to the ground by one of his scaley pupa buddies in another.

If my memory serves me right, the device of setting a fairly tough teaser to solve at the very first location is a Howarth hallmark (I still wake up nights shrieking about that vending machine in *Waxworks*) but the younger player may find such immobility discouraging, with not even the excellence of the graphics — the best ever from AI, I would say — enough, perhaps, to compensate for the frustration.

No complaints, though, about the intended flexibility of inputs, with the ability to enter Hobbit-like multiple-instruction statements and full sentences plus time-saving commands such as TAKE ALL. What I did find irritating, though was an occasional refusal to accept commands actually listed in the hints leaflet that comes with the game.

For example, trying HIT or HELP in the two earliest locations produces the response, "Hit/help is a word I don't know". Not, as one would expect, "You can't do that here" or "I can't help you here". My experience is that even novice adventurers don't mind — even positively adore — untangling the most devious challenges, provided that the most misguided inputs still produce reasonable responses. When they don't, this tends to cast doubt over the integrity of the game's logic as a whole. Fundamental bugs are not what one expects from AI or Brian Howarth.

That said, anyone who does persevere will surely find Gremlins full of ingenuity, fun and visual delight — yes, the graphics really are first rate. And if, like me, you can't escape the fate of serving as target practice for a miscreant Mogwai, you can always send AI a large SAE for a free hint sheet — or call them on 021-359 0801 for info about their hint books.



Go Gremlin bashing in Adventure International's latest

WIN LEVEL NINE GAMES

The screen shots you see here are taken from Level Nine's latest adventure, *Emerald Isle*. There are one hundred and ten screens here — though the game actually has many more than this.

You can win *Emerald Isle* and all the other fantastic adventures in the Level Nine series by playing our fun and easy to enter screen shot game.

We have one first prize of the complete Level Nine range and five runners-up prizes of the splendid *Emerald Isle*.

To win a prize, study carefully the screens in the photograph. All you have to do is tell us as many items you can spot with the letters L (for Level), N (for Nine), C (for Commodore), and U (for User).

Write your list out on a spare piece of paper and send off with the completed coupon below to Commodore User, Level Nine Competition, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Entries must reach us no later than 25th June 1985.

Name...

Address..

....

....

My favourite three adventure games are

1...

2...

3...



That Condor moment

Last month I probably bored everyone silly raving about the brilliantly fresh visual quality of the graphics in Mindshadow, the pricey (perhaps priciest-ever) disk adventure from Activision. Now I can bore everyone even sillier with the news that its sister title, **The Tracer Sanction**, has been giving me equal cause for admiration over the couple of weeks I've been exploring it.

The challenge here is to track down an interplanetary criminal named The Wing by exploring the near galaxy in your role as an agent for the Stellar Intelligence Agency. You leave base with some all-important charts and sufficient fuel in your personal space cruiser to explore as many of the 80 possible locations as possible.

What makes the non-too original scenario so pleasurable to work through is the sheer scope of the player aids available to you. All eight of those usually redundant function keys are utilised to make gaming really easy; for example, touching one key allows you to SAVE up to 10 separately identified attempts, while another offers a fast quicksave routine best-used before a risky move.

You can also summon Condor — a lugubrious help-mate who'll let slip up to three clues during the course of any one game. Also helpful is the facility to toggle between the last 24 lines of text and the current graphics screen at any time just by hitting Return. All this in addition to the ability to input full-sentence commands.

Another winning feature — shared by Mindshadow — is that the double-sided disk carries a demo tutorial which takes the absolute beginner through the rudiments of playing a computer adventure. It includes a reference list of key commands.

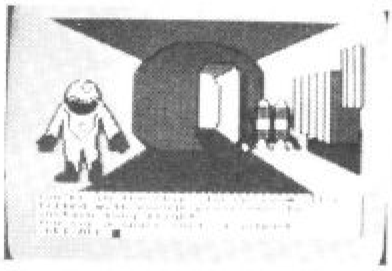
The Tracer Sanction





Condor dispenses clues in the Tracer Sanction

At £19.95, The Tracer Sanction is £2 more expensive than the excellent new disk version of *The Hobbit*. Certainly it's not as sophisticated in some respects, but both are examples of the kind of quality you can get if you're prepared to peel off that green folding stuff.



The Tracer Sanction

Adventuring on the cheap

Just in case you're beginning to think that we're only here to please readers who can pay for their software with Gold American Express cards, how does this grab you? A thumping good traditional role — playing dungeons and dragons text adventure by Derek Brewster which sold at £7.95 when released for the Spectrum, now available in a 64 version for the first time at only £2.99, thanks to the budget label Atlantis Gold.

In **Velnor's Lair**, you can choose to search out and defeat your devilish foe in his labyrinthine retreat by taking the guise of a warrior, wizard or priest — with attributes and disadvantages appropriate to each. Magic objects, powerful spells, careful mapping and sheer cunning can bring you success — but frequent combat and bad strategy will soon mark you down as a candidate for a wooden overcoat.

True, Velnor's Lair doesn't boast 731 locations, full-colour 3D animated graphics, or the chance to win £25,000 and a night out in Sir Clive Sinclair's battery mobile. But it does offer hours of entertainment at a ridiculously low price. And just in case it isn't ridiculously low enough for you, watch out for next month's review of **Africa Gardens**, a text adventure from Gilsoft that'll cost you all of £1.99.

Book Look

Where do you find some of the best computer books — especially if it's adventures you're after? In the children's section, that's where. New from Pan Books, in their Piccolo Factbook series, is **Computer Projects**, which is jam-packed with useful little programs — including a quiz writer, a mini database, and a neat little text adventure.

What's particularly admirable about the latter is that there's a line-by-line explanation of the program, which incorporates some quite clever techniques such as randomised eventing; and of course these routines can be adapted for use in your own programs. Great value at £1.75.

• COMPETITION •

There's a fortune to be made by some bright spark who remixes the theme music from Shadowfire and releases it as a single — but few soundtracks are so memorable. One best-selling 64 adventure was, perhaps, famous for having no music or sound effects at all. Was it (A) Spiderman, (B) Heroes of Karn, or (C) The Lords of Midnight? If you give the right answer, you're in with a chance of winning a double-pack of no-nonsense joystick-wrenching arcaders from Interdisk.

Tick A, B or C on the coupon below, add the names of your current three most favourite adventures, and mail it to the address shown below before 21st June.

The answer to April's incredibly difficult competition was "Scott". You all got it right but the first card out of the bag came from Martin Wright from Dyfed in Wales. Your prize is winging it's way over, Martin.

Your name..

Address..

....

My choice is A B C

My three favourite adventures are:

1..

2..

3..

Send this coupon to Soundtrack Competition, *Commodore User*, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

NEWS ● NEWS ● NEWS ● NEWS ● NEWS ● NEWS

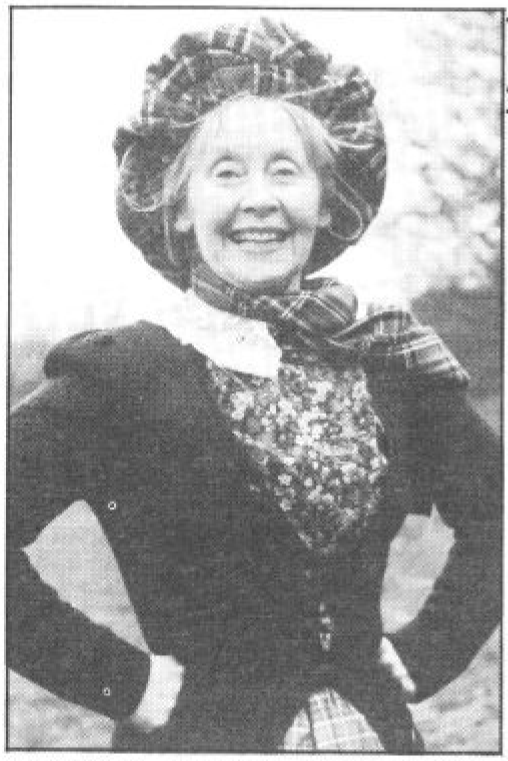
● **With the news** that the Mersey has claimed yet another software house (this time it's Bug-Byte) doubt hangs over the future of Terry Hall's follow-up to his classic *Twin Kingdom Valley* — one of the UK's first and best graphic adventures — which the company planned to release this autumn.

● **Adventurers with fidgety fingers** can keep their digits even busier now that Whitby Computers have perfected a simulator that makes it possible to type in and Run any Basic program (it can include graphics) originally written for the Spectrum. Price is £14.95 on turbo load tape. Phone 0947 604966 for leaflet.

● **Artic are at last** getting round to booting 64 versions of *Espionage Island, Inca Curse, Planet of Death* and *Ship of Doom* with a bargain basement price tag of £1.99 each.

● **Roy Carnell's tortuous** text teaser *Black Crystal* also makes it onto the 64 at last, courtesy of Mastervision, at £3.99, while his new mega-effort, the four-part Wrath of Magra, could turn out to incur the wrath of your bank manager at £12.50, also from Mastervision.

● **No news is good news?** PSS still aren't ready to release *Swords and Sorcery*, which is reputed to have taken 7,000 programming hours already to perfect its innovative graphics and ability to accept add-on play modules. Neither has *Tristan and Isolde* from CRL, flagged as a full-blooded adventure permitting Lords-style single-key input to sell at £8.95, yet been seen in the Valley.



Super Gran—get ready for the adventure

SUPER GRAN ADVENTURE

Super Gran — undaunted by her recent disastrous appearance in Tynesoft's arcade game — is ready to redeem herself in a new game.

This one will be an adventure written by Adventure International's top UK programmer — Brian Howarth.

Adventure International are beefing up their UK operation. Their most recent release — *Gremlins* — was a higher chart performer than any of the games — including the *Hulk* and *Spiderman* — imported from their American parent company.

A spokesman for Adventure International UK told *Commodore User* that they hoped the UK-programmed games would be put on sale in the US under a reciprocal arrangement.

The Super Gran game will appear on the Tynesoft label but will be programmed by Adventure International under contract.

The game is aimed at younger players and will have just thirty five locations.

The plot features the geriatric super hero in a run-in with the evil Scunner Campbell over a new machine invented by Professor Black.

Super Gran has lost her "superness" and it's up to you to get it back . . .

● CHARTS ●

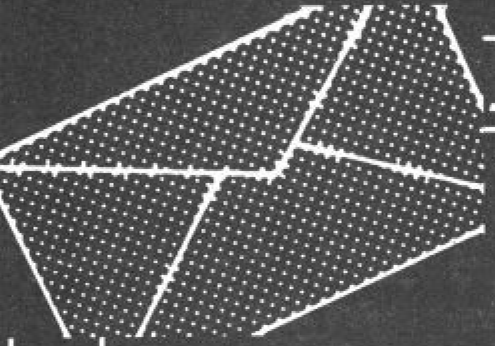
NE*	1 (–)	**Emerald Isle**	(Level 9 GrA, £6.95)
	2 (6)	**Upper Gumtree**	(Richard Shepherd, GrA, £9.95/£11.95)
NE*	3 (–)	**Gremlins**	(Adventure International, GrA, £9.95)
	4 (1)	**Return to Eden**	(Level 9, GrA, £9.95/£11.95)
	5 (8)	**The Hobbit**	– Expanded disk version (Melbourne House, GrA, £17.95)
	6 (4)	**Lords of Midnight**	(Beyond, GrA, £9.95)
	7 (2)	**Castle of Terror**	(Melbourne House, GrA, £9.95)
NE*	8 (–)	**Velnor's Lair**	(Atlantis Gold, TA, £2.99)
NE*	9 (–)	**Tower of Despair**	(Games Workshop, TA, £7.95)
	10 (3)	**Mindbender**	(Gilsoft Gold, £1.99)

It's goodbye to some old friends and hello to four new entries this month — in the world's first and only chart of best-selling micro adventures.

Level 9 establish a new record by being the first mainline adventure software house to chalk up two consecutive Number 1 hits, as their attractively-priced graphic title *Emerald Isle* replaces *Return to Eden* at the top spot just a few weeks after its release.

Gremlins zips straight in at No. 3 (anyone got a flashlight?), while *Tower of Despair* — a bit of a sleeper — at last gets a foothold, as does the bargain of the month, *Velnor's Lair*.

The excellent new disk version of *The Hobbit* with its superb new graphics and extra locations, nudges another three places up the chart, with *Upper Gumtree* also travelling in the right direction.



Letters Letters Letters Letters

Letters Letters Letters Letters Letters Letters

Adventure tips

As an avid reader of your super magazine I thought it was about time I put ink to paper to write to you. It is concerning the program in 'Victuals' (March issue) entitled 2-D Spiral by Neil Phillips for the CBM 64. My first point is to say it can also be typed in on a Vic and works exactly the same as the 64. One thing for any CBM 64 or Vic owner concerning that program, try pressing shift and 2, therefore creating ". The screen fills with these, spaces, cursor ups, down, and left. Why this is I can't figure out.

Would you be able to help me with a couple of adventures because at present I am totally stuck? If any reader has completed or got far on the adventures *Curse of the Werewolf* or *Rescue from Castle Dread* from Terminal Software I would be grateful for ANY assistance.

That's enough of your help, let me give you some Vic Tips. POKEing 650, 128 makes all keys auto-repeat, POKEing 650,0 stops this and POKEing 650,64 cancels every key. Use SYS64802 to return to a start screen, this wipes out all memory yet leaves any graphics in memory.

Andrew Philpott,
115 Fordwich,
Hertford,
Herts. SG14 2DF.

Micronet Talkback

I'd just like to say . . . That the reason the average Compunetter logs on for 10 min is the shortage of access points while Prestel has them in the remotest of places. I have a local call to Prestel. No C.net for over 100 miles.

R. Paul Wood,
Bwlcyn,
Trefor,
Caernarfon,
Gwynedd LL54 5HG.

I'd just like to say . . . thanks for an interesting and informative magazine. Hope that more space can be given to the Happy Hacker. What's this about a satellite interface? Beam me up Scottie.

Terance Michael Bloomfield,
56 Astra Drive,
River View Park,
Estate,
Gravesend,
Kent DA12 4PY.

I'd just like to say . . . Why don't you put a Telesoftware Service on Commodore User like Your Computer has. I get Commodore User every month and think it is very good. Regards
Zma

Matthew Middleton,
Rushley Walls,
Sugar Lane,
Whiteley Green,
Macclesfield,
Ches.

I'd just like to say . . . great mag, more serious software please.

John O'Brien,
129 Peat Road,
Glasgow G53 6LD.

I'd just like to say . . .
That I have just completed Microgen's *Pyjamarama*. Has anyone else done this? I would be most willing to help anyone who has been having problems with this brilliant game. If they enclose an SAE I will send them the solution.

Mr. J.G. Gunning,
35 Greystown Park,
Upper Malone,
Belfast BT9 6UP.

I'd just like to say . . .
Can anyone tell me how to get up the stairs in the adventure *Mystery at Munroe Manor* please. Any other hints on this would be appreciated.

Mrs. S. Wright,
16 Waltham Walk,
Eye,
Peterborough.

Karnath-Bragger

I have completed the *Staff of Karnath*! Yes, I was bewildered too! The 16th Pentangle makes the Obelisk door lift up, and you see the Staff! I tried shooting it using the Menhir spell, as this spell had not been used before, and amazingly it worked! Am I the first person, you know of who has completed it, I would like to contact him (or her!).

David Charles,
6, Gelert Avenue,
Leicester,
LE5 2NS.

Surely David Charles isn't the only person to have completed Karnath — is he?

Volcano erupts

Here is a tip for those who are stuck on Mission 1 Project Volcano for the Commodore 64. If you want to find the code to destruct the computer this is what you do. First type LOAD, press RETURN when the first part has loaded and you get a flashing cursor, stop tape, turn off machine, turn back on, and type LOAD and press RETURN again.

When the second part has loaded and you get a flashing cursor type RUN and press RETURN and the game will start but then it will crash. Now Type PRINT OX% and up will come the code number.

Graham Wright,
'Hazeldene',
Market Place,
Kessingland,
Suffolk NR33 7TE.

Contact down-under

We would like you to include details of our group when you next publish a 'USER GROUP' listing.

Our group the Southport Commodore Computer Users Group has now been going for 18 months, meeting weekly at the Labrador State Primary School, Turpin Road, Labrador, QLD., Australia.

We would like to establish regular contact with groups in the United Kingdom to help us overcome the shortage of up to date information, as magazines from the U.K. are usually 3 months old before they become available here.

Air mail subscription is not the answer as the price of each magazine would then be around £3.00, rather a lot of money for a magazine no matter how good it is.

Looking forward to seeing our listing in a future issue.

S.C.C.U.G.,
Box 790,
Southport,
Queensland,
Australia 4215.

Tommy Praise

By the time the home computer arrived I had already been on this planet earth for some 60 years plus, and I am more than pleased that it arrived before I departed.

I have had my Commodore 64 for one year and to be honest I do not find computing easy, I don't buy games as such; apart from *Heathrow Air Traffic Control* and *Solo Flight* I have none. My pleasure comes from trying to write simple programs. I am writing to thank you for the 8 lines on using the joystick (Tommy's Tips, April), I have had to use cursors before.

For some reason I did not discover Commodore User until December 84 and in particular Tommy's Tips which I think are most helpful and constructive, I feel it a great pity that the Editor cannot see his way clear to giving the column a couple of more pages, there must be thousands like myself who go straight to that page.

Ben Reynolds,
13 The Close,
Selsey,
West Sussex,
PO 20 0ET.

Lightning Club

I wonder if you would be kind enough to print this letter to let purchasers of Oasis Software's "White Lightning" for the Commodore 64 know of the formation of the C64 White Lightning Users Group.

An s.a.e. will bring further details.

David Russell,
146 Hill Top Drive,
Rochdale,
Lancs. OL11 2RZ.

Radio Hamming

Being both a Commodore user and amateur radio enthusiast, I was very pleased to read your current Micro-Wave radio series. One point I would like to make, referring to Part 3 of the series in your May issue, is that you must have a licence before you can undertake radio transmissions, and that transmitting without one is an offence.

Getting a licence involves taking a proficiency exam. For further details, readers might like to contact the Radio Society of Great Britain whose telephone number is: Potters Bar 59015. Keep up the good work.

A. Timmins,
Clarksfield,
Oldham,
Greater Manchester.

Send your letters to
Commodore User,
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU.



Written any good programs lately?

Micronet 800 are currently looking for good quality Commodore 64 programs to load onto our mainframes and offer direct to our thousands of members.

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micronet 800

Contact: **Phil Godsell,**
Software Manager
Micronet 800
8 Herbal Hill,
London EC1R 5EJ.

Surprise!



There's a surprise in store in every issue of Computer & Video Games magazine. Every month you'll find great games listings for your computer, reviews of the latest software, The Top 30 Chart, The Bugs, Arcade Action, competitions and many more fun surprises. **At your newsagent on the 16th of every month.**

Going to war with Tramiel

Everyone likes a nice rags-to-riches story. The hometown boy (or girl), for example, who makes it big in the cut-throat world of business. Jack Tramiel's success with Commodore has all the right ingredients.

A Polish Jew, Tramiel takes his horrific memories of Auschwitz to America after the Second World War. He drives a New York cab and repairs typewriters, gets involved with business machines, pocket calculators and finally computers. From there it's non-stop to the top — the top being the building of the biggest home-computer company in the world.

To add a bit of spice to the story, he acquires the reputation of being a ruthless, pugnacious and big-mouth entrepreneur — this is the stuff that Dallas is made of. So it's a great story and it takes a sensitive and perceptive writer to make the most of it. Sadly, Michael Tomczyk fails on both counts.

Describing his tome as 'an insider's account' of Commodore and Tramiel, Tomczyk fails to take a detached view, fails to show any modesty as to his own involvement in the Great Events and fails to give any valuable insights into Tramiel himself.

Why? Because to Tomczyk, also of Polish extraction, Tramiel has reached Olympian proportions. His business practices may be ruthless, he may sack people as easily as ordering a burger, but he can do nothing wrong. And Tomczyk is quick with the justifications.

But Tomczyk's worst offence is his constant use of the 'War' metaphor which Tramiel himself coined in his much-quoted "business is war" statement. So the Commodorians are described as 'guerillas' and 'admirals' and 'generals'. But the worst offence is saved for Tramiel himself: "Jack was not just a president or company founder. He was a *presence*, like Mahatma Gandhi must have been a presence".

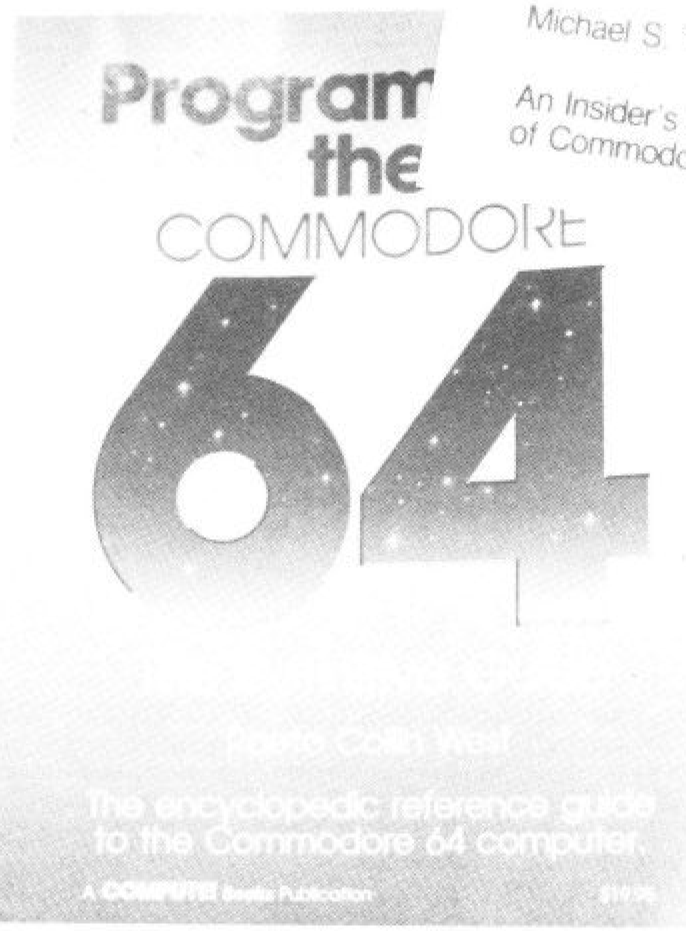
Despite the lousy writing, there is a lot to be gleaned from this book. Tomczyk's story starts with his own arrival, just when the Vic was being developed. He takes us through that, on to the 64 and finally, to Tramiel's departure and intention to buy up Atari. If you can scrape off the turgid and mundane details of who's who at Commodore, you've got some useful material.

In short, Michael Tomczyk has managed to ruin what amounts to a great story — his material is strong but his writing gets up your nose. If Tramiel makes an equally big success of Atari, let's hope someone else gets to write the sequel.

Bohdan Buciak

—The Home Computer Wars
—by Michael Tomczyk
—Compute! Books c/o Holt Saunders 1 St Anne's Road Eastbourne, E Sussex
—£9.95
—Great story from a lousy writer





64 goes West

Four years ago I bought my first computer — a Pet. Obsolete now, but then it was the best thing since sliced bread. Being inquisitive about how it worked I looked around and eventually came across an excellent book by Rae West that became the reference guide for me. It was called "Programming the Pet".

The author has now brought out revised versions of that book for the Vic-20 and now for the Commodore 64.

Not so long ago a figure of 10% was estimated as the percentage of computer buyers who learn to program their machines. It is these programmers that the book is aimed at, especially those who have learnt Basic.

But this is not the book to buy if you are a complete beginner, there are better books to go to. Anyone else right up to whizz-kid machine coder should certainly find a place for it, not on the bookshelves either, but right next to the computer.

The book looks at all aspects of the 64 and some of these features need some machine-code to show them off. For example: multiple sprites, programming function keys or graphics and text displays.

Until it is brought in as a separate topic, any machine code programs are given as lists of data. To overcome the problem of mistyping lines, a special loader has been included, which patches itself into Basic. When a line is typed in, a checksum value is calculated and shown on the screen and this should correspond with the value given in the listing at the end of each line. A rather unique system and I think it's a very good idea.

Through 17 chapters the author moves methodically from advanced Basic through to machine language and then goes through graphics, sprites, sounds and peripherals like tape, disk, joysticks and paddles.

While the book is generally superb I found the chapter on system variables and ROM calls excellent. This lists the entire ROM routine by routine giving the purpose of the routine, what locations are used and how it works.

There are many example programs in Basic and machine-code and these include such gems as a three-part music player, various disk utilities, sprite editors and many more. High resolution graphics need machine-code to do them justice and the book provides these.

This is a big book, very well laid out with plenty of diagrams and explanations. Some of these can be quite detailed, for instance a look at all the waveforms in the SID chip and how

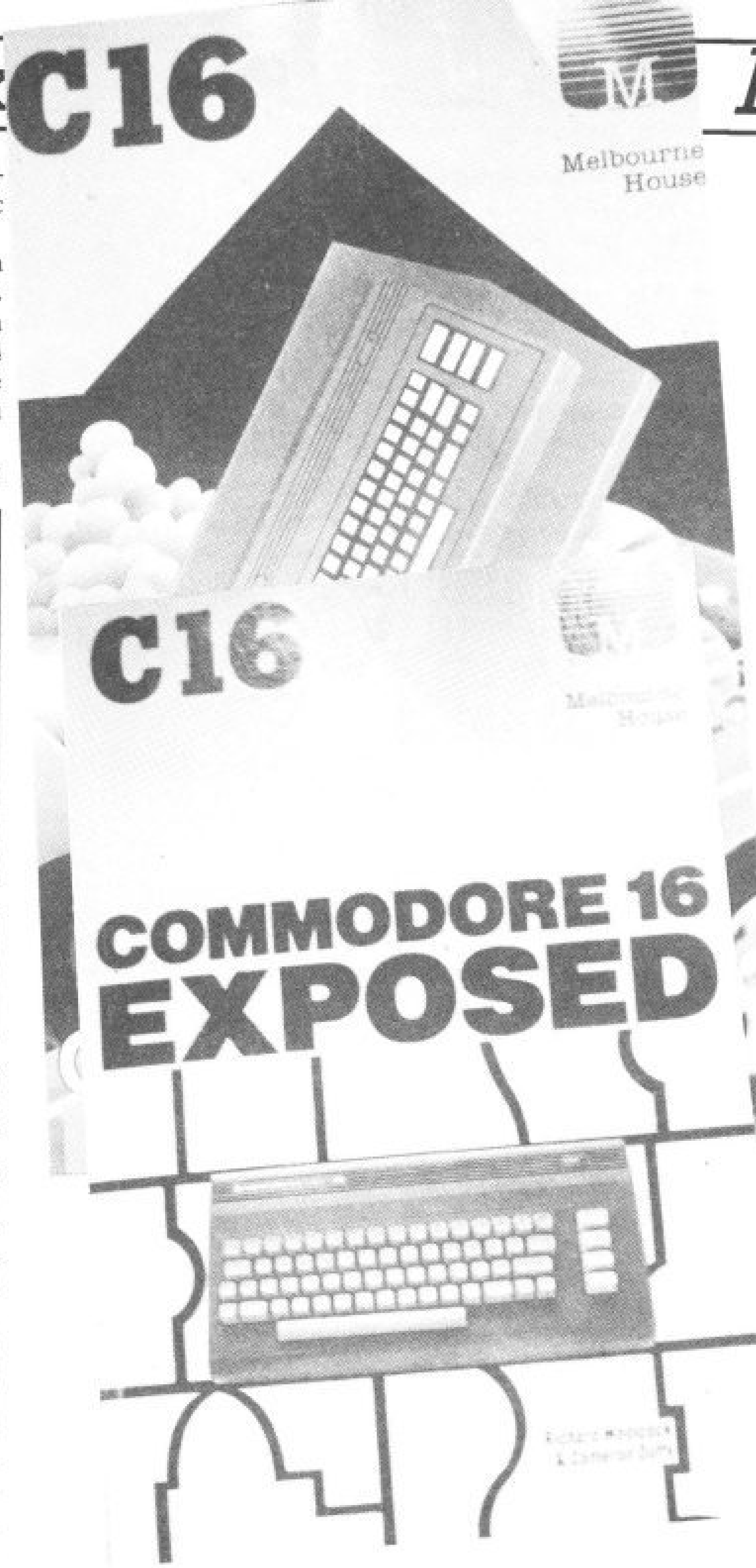
these are generated, and a concise introduction to music theory.

I think the only thing I can fault this book on is its price. However, if you are keen on getting the best out of your 64 and will only ever buy one book, make it this one. You won't be disappointed.

David Bolton

—Programming the Commodore 64
—by Raeto West
—Level Ltd c/o Biblios Publications Ltd Star Road Partridge Green Horsham, Surrey
—£14.90
—Recommended

Beginners into Assembly



Unpretentiously entitled *C16 Machine Language For The Absolute Beginner*, that's exactly what you get in this latest book from the pen of Peter Beresford. The complete novice to machine language is taken through everything they need to know about the C16 in a mere 150 pages. Don't be deceived by the slimness of this volume, it includes just about everything you need to know to start writing your own machine code programs. Mr Beresford leaves out much of the padding so many other authors find it necessary to include, making this book just as informative as many twice its size.

There are twelve chapters in all, none of which is more than ten pages long. Each topic is therefore concisely covered in sufficiently short a space for the reader to maintain concentration and interest. The book begins with an introduction to machine language, explaining the advantages in memory and speed to be gained over Basic. Then you are introduced to the internal architecture of the 7501 microprocessor with the help of some simple machine language programs. Next is a break from the keyboard to introduce some conceptual problems, namely the relationship between decimal, hex, and binary numbering systems. This is explained by means of the much used 'eight fingered hand' analogy. Following a brief introduction to the C16's resident monitor, TEDMON, you get to grips with the more powerful tools of the machine language programmer's trade. Successive chapters deal with, among other things, the various addressing modes, branch instructions, use of the index registers, logical operators and the C16's KERNAL system. Each chapter deals clearly with the subject, using programs to illustrate the techniques involved. At the end of each chapter a brief summary encapsulates the major points.

The appendices, as usual, include all the information you can find in Commodore's own literature, but with some added bonuses. One section deals with what to look for when buying a good assembler. Also included are detailed memory maps and a description of the C16's TED chip.

***C16 Machine Language For The Absolute Beginner* is a well written, comprehensive guide suitable for any C16 owner thinking of tackling machine code for the first time. If that description applies to you, give serious consideration to splashing out six quid on it.**

Ken McMahon

—C-16 Machine Language For The Absolute Beginner
—by Peter Beresford
—Melbourne House
—£5.95
—An excellent little book

Exposing the 16

The third offering from Melbourne House for the 16, *Commodore 16 Exposed*, is described on the cover as 'an encyclopaedia of solutions which begins with Basic programming and takes the reader through to machine language'. Well, I don't know about an encyclopaedia of solutions, but they've got the chronology roughly right.

Introductory chapters are devoted to Basic programming taking you right through from elementary one-line programs to more complex stuff involving loops, subroutines and arithmetic expressions. There's also a comprehensive explanation of variables, arrays and arithmetic and Boolean operators.

From there we move on to more advanced Basic techniques, including how to save memory and increase program speed and how to scan the keyboard. This section also contains some useful machine-code subroutines (don't panic fledglings, they're loaded into memory by a simple Basic program) such as OLD, which retrieves a program wiped out by a NEW instruction.

A chapter on graphics and sound deals quite well with the latter, including an interrupt driven program to read and play a table of notes. Graphics, however, get scant attention, the only item of interest being an explanation of the way the screen is organised.

After an unnecessary chapter on peripherals (their workings are much better dealt with in the manuals), there follow several chapters on machine-code, some good, others not. All the important stuff is included — binary and hex, addressing techniques, memory maps and so on. Some of the more complicated topics, like indexed addressing, could have done with more coverage. Not only were techniques inadequately explained, but no examples were given as to how they might be used.

This book is a bit of a mixed bag. Whilst it contains a lot of useful reference material like the chapters on TEDMON, the KERNAL, and memory organisations, a good sized chunk of the other material is duplicated in the manual. A bad case of the C16 overexposed. You may, therefore, find it hard to justify the £6.95 price tag.

Ken McMahon □

—Commodore 16 Exposed
—by Richard Woolack and Cameron Duffy
—Melbourne House
—£6.95
—Not value for money

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WARNING

It is illegal to sell pirated copies of computer games. The only software that can be sold legitimately through our classified section are genuine tapes, disks, or cartridges bought from shops or by mail order from software houses. *Commodore User* will press for the maximum penalties to be brought against anyone breaking these rules. We regret that due to large-scale swapping of pirated software we can no longer allow swaps of tapes, disks, or cartridges in our classified section.

Attention. The most useful add-on for years, a Commodore and Vic reset-switch. Avoid program crashes and recover. Lost software if interested, send £4 stg to: Colin McCormack, 43 Westgate Road, Bishopstown, Cork, Eire. (program recovery software included).

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CBM 64 for sale reference guide, C2N tape deck, Castle of Terror, Arabian Knights, Snowball, Return to Eden, Jet Set Willy, excellent condition, unwanted gift. What a bargain! £150 Banbury (0295) 811844, David.

Commodore 64 for sale excellent condition + books, magazines, datasette, software included. £175 Mike Owen (0793) 822164 (home), (0793) 26252 ext. 4056 (office).

Commodore 64 software for sale. Snowball adventure game £6, Manic Miner £5, or swap for any suitable game(s). SAE Upton, 266 Church Road, Sheldon, Birmingham B26 3YH.

Easy script on disk for CBM 64. Boxed as new with six games. Also on disk £25, also for CBM 64 on tape, Maths 2 'O' Level Revision £5, Football Manager £3, Hunchback £3. All originals. Tel. Nottingham (0602) 224126 after 6p.m.

Computerpal wanted! Write to me usin' a tape (64 only) and i'll promise a reply! i'm a beginner in computing! No-one to share interest with.

C64 software for sale: Hunchback, Jet Set Willy, Strip Poker, Raid over Moscow, Mr. Wimpy, Squirm, Fastback, International Soccer, Ghostbusters, Decathalon, Hobbit, The Pen and the Dark, Busicalc 1. The Lot £60 or swap for modem. Lawrence Hoyles, 272 Morley Rd., Maghull, Merseyside L31 5LP.

CBM 64 original software all less than 2 months old. Disks: Easyscript £40, Future Finance £30, Micromagpie £25, Hobbit £10, Dragonworld £12, High Flyer £6, cassette; Busicalc £5, boxed manuals, back-up copies if supplied with original, etc. Contact Tan, 17a Moorland Avenue, Leeds LS6 1AP.

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Practicalc 64	c ss	39.95	29.95
Practicalc	d ss	44.50	34.95
Easy Stock	c app	75.00	62.95
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64 Fourth	rom ie	29.95	26.95
Simons Basic	rom ie	50.00	40.95
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wp = word processor
db = database
ss = bread sheet

LEISURE SOFTWARE

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Raid on Bungling Bay	9.95	8.50
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ap = accounts package
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CBM 64 computer £120, 1701 colour monitor £150, Seikosh GP100 UC printer £110, books, tapes, joystick, all half price. Phone Eastbourne (0323) 33310 eve.

Vic-20 + C2N cassette deck + 16K rampack + Starbattle cartridge + several tapes + joystick. Excellent condition, recently serviced (which cost £35). Genuine bargain at only £60. Also some original 64 games for sale. e.g. Ghostbusters, Hunchback ii, Bruce Lee, Hobbit. Tel. Walsall (0922) 61126.

CBM 64. I want to exchange ideas and programms. If you have got a disk and no contacts, write to: Frank Drexler, 46 The Warings, Heskin, Chorley, Lancs PR7 5NZ.

Vic 20 game for sale. Jerry Zappers 3K unexpanded game for £2.50. Address: The Forge House, Alderton, Chippenham, Wilts SN14 6NL. Phone Malmsbury 840304.

Commodore 64 software for sale. Hunchback ii, Give my Regards to Broadstreet, Flak, Raid over Moscow, Commodore Music Maker, Potty Pigeon, Raid over Bungeling Bay, Suicide Express and seven more. Costs new over £140. Sell £85. Tel. (0382) 78556.

CBM 64 software to swap titles include Summer Games, R.O. Moscow, Tapper, Bruce Lee, Hunchback ii. Want Lazy Jones, not all originals. For list write to P. Baker, 27 Burnham Road, Hullbridge, Essex.

Back-up copies produced (for nominal use only) of any Vic-20 + CBM 64 software, send blank tape and software + £1.50 to cover costs to: Richard Weston, 93 Moorland Rd., Maghull, Merseyside, L37 5JQ.

CBM 64 software for sale. Originals BC Basic £8, Daley's Decathalon, Manic Miner, Booga-Boo, Hover B., Revenge of MC, Project Gibraltar, Wheelin Wallis. All £3. Horse Race Forecast £10. Phone 0429 870140 after 4pm and ask for Steven.

CBM 64 C2N recorder, MPS 801 Printer £100 of software. Mags and Books worth £700 going for £350 ono. Try me. Ask for Tony 902 6392.

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